Borough of Leicester.

COLLEGE OF SURGEONS OF ENGLAND
MAY 90

THIRTY-NINTH

ANNUAL REPORT

UPON THE

HEALTH OF LEICESTER,

ANNO DOMINI

1888,

And the proceedings taken to prevent
Adulteration of Food, &c.

BY

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Associate of Owen's College.
Member of the Society of Medical Officers of Health, &c.

Corporation of Leicester

MEMBERS OF THE

Sanitary Committee.

——(:o:)——

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F. Braley	*Sanitary Inspector.*
F. J. Pearce	,, ,,
C. F. Bishop	,, ,,
A. Coles	*Sanitary Inspector (for Meat and Food.)*
J. Watts	*Disinfector of Houses, &c.*
G. Nichols	*Office Clerk.*
G. Graham	*Junior do.*
Miss Wigg	*Matron Fever Hospital.*

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N.B.—The Tables marked * are drawn up in accordance with the suggestions made by the Society of Medical Officers of Health, with a view to securing more uniformity in the various Health Reports throughout the country.

H. T.

HEALTH DEPARTMENT,
TOWN HALL, LEICESTER,
30th March, 1889.

To the Chairman and Members of the Sanitary Committee.

GENTLEMEN,

I herewith submit for your consideration my Report upon the health and sanitary condition of the Borough for 1888, and have much pleasure in being able to point to a continued satisfactory condition of the public health, so far as indicated by the death-rate for the past year, which reached only 17·9 per 1000. The chief feature in connection with disease of an infectious character has been our continued comparative immunity from Scarlet Fever; but more cases of Small-pox have been met with than for some years, though happily, as a result of the vigilant measures adopted as each case arose, no serious spread of this disease took place.

In drawing up this Report, I have followed the lines adopted by me since 1885, both in the general arrangement of the matter and in the tabulation of vital and mortal statistics. For, in addition to being a record of each current year, these reports become collectively of still more value as years roll by, in affording means for ascertaining the progress or otherwise of the sanitary condition of the Borough; and in making comparison between one period and another, it is of considerable service to have approximately the same data upon which to base these.

A perusal of the present Report will, I think, shew that during the year under review something has been attempted, something done; and although much of the work now in progress, with a view of improving the general health and well-being of the town, is undoubtedly costly, it is always to be remembered that, if such necessary work be not carried out in large communities, the neglect of it becomes also costly in waste of human life, and impaired health and vigour of the people. I would congratulate the Committee upon the inception of two important pieces of work, the provision of additional public baths and the proposed erection of a model lodging-house. I would again express the hope that ere long you may see your way to make a beginning in abolishing the slaughter-house nuisance from the crowded parts of the town.

During the summer I continued my investigations into the causes and etiology of summer Diarrhœa, so prevalent in Leicester, the details of which will be found in their proper place.

I take this opportunity of again tendering my acknowledgments to the editors of the various papers, for their gratuitous insertion of my weekly and other reports.

And remain, Gentlemen, your obedient servant,

HY. TOMKINS.

By an Order of the Local Government Board, dated March, 1880, Article 18, Section 14, it is prescribed, that every Medical Officer of Health shall—

"Prepare an Annual Report, to be made to the end of December in each "year, comprising a summary of the action taken during the year for "preventing the spread of disease, and an account of the sanitary state of "his district generally, at the end of the year.

"The Report shall also contain an account of the inquiries which he has made "as to conditions injurious to health existing in his district, and of the "proceedings in which he has taken part or advised under the Public "Health Act, 1875, so far as such proceedings relate to those conditions

"Also an account of the supervision exercised by him, or on his advice, for "sanitary purposes, over places and houses that the Sanitary Authority "have power to regulate, with the nature and results of any proceedings "which may have been so required and taken in respect of the same "during the year.

"It shall also record the action taken by him, or on his advice, during the "year, in regard to offensive trades and to factories and workshops.

"The report shall also contain tabular statements of the sickness and mortality within the district, classified according to diseases, ages, and localities."

CORRECTION.

Page 31, line 9 from bottom, for "a magnetic," read "a magnet."

Report
of
Medical Officer of Health,
1888.

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Part I.

SANITATION GENERALLY.

Health of the Borough during 1888.—It is satisfactory to be able again to report an improved condition of the public health in Leicester during the past year. Taking the usual standard by which the health of communities is roughly guaged (the death-rate per thousand of the population), one has to record the lowest death-rate in the Borough during at least the last thirty years. In 1887, the death-rate had shewn a marked decline on previous years, and was no more than 19.01; during the year under review it has fallen still lower, and reached in 1888 only 17·98 per thousand. Comparing Leicester with the large towns of the kingdom, we find that, in the twenty-eight towns referred to in the weekly returns of the Registrar-General, the death-rate was 19.2; the highest of these being Manchester, with a death-rate of 26·1 per thousand, whilst Brighton had the lowest rate, reaching only 16·1 per thousand per annum. Considering that Leicester is a manufacturing town, with a large proportion of its population engaged in industries often of a character decidedly prejudicial to robust health, its position among the other large towns of England is highly satisfactory.

Mortality
1888 com
with other

Diminished number of Deaths.

An examination of the mortality returns shews that, notwithstanding the increase in the population during the year, the actual number of deaths was eighty-two below that of 1887. Further examination of these returns (see Vital Statistics, part III.) shew, however, that this diminution is more than accounted for by the smaller number of fatal cases of diarrhœa than in the preceding year; but this subject will be discussed at more length subsequently. In the report for 1887, it was pointed out that the birth-rate of the Borough had for some years been steadily decreasing, and had then reached the lowest point touched for a long period. During 1888 it has still further declined, reaching only 32·2 per thousand. This diminished birth-rate has always to be borne in mind in considering the death-rate of any community, for, other things being equal, a smaller proportion of young children and infants, in any population, should tend, under normal conditions, to lower its death-rate.

Diminished Birth-rate.

Prevalence of Sickness during 1888.—Outside the information obtained by the notification of infectious disease, we have no reliable data on which to base an estimate as to the general health of the community other than that afforded by the bills of mortality. On examining these we find that one disease, the scourge of our country, and especially of our urban communities, *i.e.*, phthisis, shows a decrease of twenty-three deaths compared with the preceding year. Probably no disease, at all events no disease of such widely-spread and universal existence, is at the present time occupying more study and attention, amongst sanitarians, than this. Its cause or causes, etiology, transmission, infection, and prevention, are being discussed and investigated in every European country, and there is a prospect of our being able, before long, to obtain more control over this pest of civilized communities than we have hitherto attained.

Decrease of Deaths from Phthisis.

Compulsory Notification of Infectious Disease. Before considering the amount of infectious disease known to have existed in the town, it may not be out of place to consider very briefly the machinery by which this information is brought to the knowledge of the Health Authority, the more so as, during the past year, this subject has received a considerable amount of attention in the medical press, in various societies, and in Parliament itself, with a view of extending the same to the whole country, instead of leaving it, as at present, to individual communities to take voluntary action in the matter.

Leicester was one of the first towns, ten years ago, to obtain powers of compulsory notification, and, as was pointed out in a paper read recently before the Society of Medical Officers of Health,* all the prophesies as to the terrible things which would ensue in the working of it, when the Corporation proposed to obtain its act for the same, have proved quite erroneous, and the good which has resulted to the town is palpable and indisputable. By its means the *locale* of each individual case as it arises is at once known to the Health Authority, and effective measures are taken to isolate and limit the spread of the infection.

Good results from notificatio of Infectious Disease.

Real disinfection of houses and material is carried out, in place of the shams which too often did duty for the same in the past. Control is obtained over infected sources of food supplies, such as dairies, bakeries, &c.; schools are prevented from being *foci* of infection by children attending from infected houses; and lastly, but by no means least, the public, and especially the lower classes, are being slowly educated to know and feel the necessity of helping, and doing their share to prevent the spread of these diseases.

Novel use of information obtained by notification.

Early in 1888, at the instance of the Medical Officer of Health for Salford, a mutual arrangement was come to among the Officers of Health of most of the large towns where notification is in force, whereby the returns of each town were placed at the disposal of the others. By this means timely notice was secured of any outbreak of infectious disease, which might possibly be a source of danger to a neighbouring community.

In March last the Sanitary Committee of this Borough, in common with most other of these towns, memorialised the Local

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* "Compulsory Notification of Infectious Disease," a paper read before the above Society by myself, in January last, and published in the February number of *Public Health*.—H. T.

Local Government Board collect and distribute information.

Government Board to take this work upon itself, as being the Central Health Authority for the country. After some months of waiting, this has been undertaken by the department, and the returns are now transmitted weekly to the Board, which on its part supplies to the Officer of Health of every town contributing, a copy of each of the other town's returns. From statements made by the President of the Local Government Board, there is very little doubt that during the coming session of Parliament a Bill dealing with this subject, for the whole country, will be brought forward by the Government.

Cases notified in 1888.

Prevalence of Infectious Disease.—By means of notification, the whole of the persons suffering from Small-pox, Scarlet Fever, Typhoid Fever, Diphtheria, Puerperal Fever, and Erysipelas, during the past year, have been brought to the cognizance of the Health Department, and *in every instance* such measures as were necessary to arrest and check the spread of the disease have been taken. The total of these was 749, as against 898 in the year preceding, distributed as follows.—Small-pox 21, Scarlet Fever 132, Diphtheria 67, Typhoid Fever 266, Puerperal Fever 8, and Erysipelas 255.

Further details of these, compared with the numbers in former years, will be found in the statistical part of this report. (Part III.)

The accompanying Table shews what the prevalence of these diseases has been in the larger towns of the country, where notification is in force :—

Cases of Infectious Disease in the following Towns during 1888, from Jan. 1st. to Dec. 31st.

Name of Town.	Population.	Small Pox.	Scarlet Fever.	Diphtheria.	Typhus Fever.	Typhoid Fever.	Puerperal Fever.	Erysipelas.
Birkenhead	100,093	0	405	34	14	250	2	
Blackburn	119,039	99	707	0	0	158	0	
Bolton	113,506	11	892	51	2	164	4	
Bradford	229,721	16	407	27	0	105	0	
Derby	96,241	11	689	20	0	145	3	
Huddersfield	91,419	14	325	41	0	56	2	
Leicester	**146.790**	**21**	**132**	**67**	**0**	**266**	**8**	**255**
Manchester	378,164	193	1612	309	37	559	18	
Nottingham	230,921	61	639	137	0	425	0	
Oldham	138,220	104	985	86	0	106	3	
Portsmouth	139,575	2	393	122	0	268	10	
Preston	103,234	549	403	29	0	199	10	
Salford	226,336	46	980	170	21	541	17	
Sunderland	131,919	11	507	49	65	159	6	

NOTE.—The above figures are compiled from the monthly returns published in the *Sanitary Record* during 1888.

Small-pox.—Twenty-one cases of Small-pox have been met with in the town, a larger number than in any year since 1882, when twenty-nine cases occurred. Fourteen were in the first quarter of the year, three in the second, and four in the third. At the beginning of the year, Small-pox existed in several parts of the country, traceable in many instances to Sheffield, whence some of our own cases were derived. The disease declined as the year progressed, so that at the end of 1888 the country was almost entirely free from it. As considerable interest attaches to Leicester, both from its known anti-vaccination tendencies, and from its almost unique method of combating the spread of Small-pox when it appears here, the following details of the cases that have occurred may not be wearisome.

Measures to prevent spread of Small-pox.

In every instance the patient was promptly removed to hospital, and where possible, those persons known to have been exposed to infection were isolated in quarantine wards. Thirty-nine were thus dealt with, three of whom developed Small-pox whilst under observation there. Besides these, fifteen men in the tramp wards at the Workhouse were also kept for a fortnight in quarantine there.

Notes of mall-pox cases met with.

CASE I.—January 3rd, W. W., male, aged 18, from Workhouse. Came into the town seeking work; had tramped recently through several towns in the north of England, where Small-pox was known to be present.

The attack was a mild one, the eruption discrete and scanty; recovered without complication or sequelæ. Had been vaccinated in infancy, and has one good vaccination mark.

Eight men who had been in contact with this patient were retained in quarantine at the Workhouse 14 days, one of whom (Case IV.) contracted the disease.

CASE II.—January 6th, C. L., female, aged 6 years; Bond-street. Some doubt as to source of infection.

Smart attack, eruption semi-confluent. Good recovery, without any serious complication. Patient unvaccinated.

Notes of Small-pox cases continued.

CASE III.—January 13th, J. C., male, aged 24; Charles-street. Contracted during a visit to Sheffield.

A trivial attack, eruption abortive. Vaccinated in infancy; two good vaccination scars. Six persons who had been in the patient's house were sent into the quarantine wards, *i.e.*, the patient's wife, his brother, together with the latter's wife and children. The patient's wife was at once re-vaccinated, both having occupied the same bed during his illness. The others had not been in close contact with him, and were not re-vaccinated.

CASE IV.—January 14th, J. W., male, aged 21, brought from Workhouse; infected from Case I. Severe attack; eruption confluent, followed by boils, loss of hair, and pitting of skin. Vaccination unknown: patient has never seen any vaccination marks, and none exist now.

CASE V.—January 17th, L. L., female, aged 5 years; Bond-street; infected by Case II. Severe attack, eruption semi-confluent, followed by inflammation of one eye and disfigurement of skin; unvaccinated.

CASE VI.—January 17th, C. M. L., female, aged 3 years; Bond-street. Infected from Case II. Very severe attack. Eruption confluent. Much suppuration and destruction of skin, and inflammation of eyes with ulceration of cornea. Skin disfigured; unvaccinated.

CASE VII.—February 6th, Geo. D., male, aged 14 years; Belgrave-gate. Source of infection undiscovered. Very slight attack. Eruption scanty, discrete. No complications. Patient vaccinated in infancy, but no scars now visible.

Three persons, the mother, the brother, and sister of patient, were taken into quarantine. All had good vaccination marks.

CASE VIII.—February 13th, C. W., female, aged 32; Alexander-street. Source of infection unknown. Severe premonitory symptoms, but afterwards trivial attack. Eruption abortive. Vaccinated in infancy: has one good scar.

In connection with this case seven persons were sent into quarantine, three of whom were children; and with the exception

Notes of mall-pox cases continued.

of the youngest child, 2½ years of age, all had been vaccinated, and had good scars. The unvaccinated child was at once vaccinated.

Case IX.—March 3rd, H. R., male, aged 11 years; Leonard-street. This boy most probably contracted the disease by playing alongside the Small-pox wards at the Hospital. It was a slight attack of an abortive character, and unfortunately got mistaken for Chicken-pox. He thus became the means of infecting his mother and brother (Cases X. and XI.) Vaccinated in infancy: has three good scars.

Case X.—March 1st, M. A. R., female, aged 49 years; Leonard-street. Mother of preceding patient; infected by him. Premonitory symptoms here very severe, but the attack ultimately proved of a very trivial character; eruption sparse and abortive. Vaccinated in childhood: two distinct scars.

Case XI.—March 1st, G. R., male, aged 15 years; Leonard-street. Son of preceding patient; contracted disease from brother (Case IX.) Severe attack, eruption copious and confluent; made rather slow convalescence, but recovered without serious complication.

The mother states that this boy was vaccinated in infancy, but she has no recollection whether it "took" or not. There is no trace of any vaccination mark. In connection with this case, seven persons were taken into quarantine, of whom the three following developed Small-pox whilst under observation there.

Case XII.—March 12th, W. R., male, aged 23 years; Leonard-street. Another son of M. A. R. (Case X.) Trivial attack. Eruption scanty, abortive. Vaccinated in infancy: three good scars.

Case XIII.—March 12th, J. R., female, aged 18 years, daughter of M. A. R.; Leonard-street. An abortive attack; only about half a dozen spots. Vaccinated in infancy: three good scars.

Case XIV.—March 11th, C. R., female, aged 25 years, married daughter of M. A. R; Humberstone-gate. An abortive attack; not more than a dozen spots. Vaccinated in infancy: four good scars. The four others who came into quarantine with the preceding escaped the disease; of these, two had been vaccinated, and had good vaccination scars. The remaining two (young children of E. R. Case XIV.) were unvaccinated, and the parents refused to allow them to be vaccinated.

Notes of Small-pox cases continued.

It should, however, be stated that only one of these latter was exposed to any infection.

Case XV.—May 20th, H. G., aged 26 years. From Workhouse. Been tramping through district where Small-pox was known to exist. A mild attack; eruption discrete; no complications. Vaccinated in infancy: two good scars.

In connection with this case, several persons were kept in quarantine at the Workhouse.

Case XVI.—June 1st, T. F., male, aged 49 years. From Workhouse. Infected by Case XV. Trivial attack; eruption abortive. Vaccinated in youth: has two good scars.

Case XVII.—June 14th, W. W., aged 38, male. Been tramping through towns where Small-pox was known to exist. Rather severe attack; eruption confluent, followed by boils, loss of hair, and pitting of skin. Vaccinated in infancy: two good scars.

Two men in contact with this patient brought into quarantine; both had good vaccination scars, and escaped infection.

Case XVIII.—July 2nd, H. W., aged 40, male; Britannia-street. Infected from Case XVII. Trivial attack; eruption abortive. Vaccinated: four good scars. Five persons admitted into quarantine with this patient, all children of his. Three had been vaccinated, and had good vaccination scars; two unvaccinated were at once successfully vaccinated, and all escaped the disease.

Case XIX.—August 4th, W. G., aged 42, male. From Workhouse Infirmary. Contracted from a patient at Workhouse. Mild attack; eruption discrete; no complications. Vaccinated in infancy: one good scar.

Notes of Small-pox cases continued.

CASE XX.—September 3rd, J. H., aged 40, male. Been hawking goods in neighbouring counties, where he probably contracted the disease. Mild attack; eruption semi-confluent; no complications. Vaccinated in infancy: two scars, one faint, one distinct. Wife and child admitted into quarantine: both had been vaccinated, and the wife had had Small-pox twenty years ago; but as they had slept with the patient, they were both re-vaccinated (unsuccessfully) as a precautionary measure. Seven other persons from lodging-houses were also sent into quarantine.

CASE XXI.—September 5th, G. M., aged 23, male, from H.M. Gaol. Source of infection in this case very obscure; possibly from material on which he worked in the prison. Mild attack; eruption discrete; no complications. Vaccinated in infancy: one good scar.

In addition to the foregoing twenty-one cases, one other was admitted into the Hospital from Aylestone; the disease was, however, without doubt, contracted somewhere within the Borough.

In reviewing the above series of cases, we see, as has been shewn over and over again, that those patients who had not been vaccinated, and those where a number of years had elapsed since the operation had been done, were those who suffered the most severely. Cases II., IV., V., VI., XI., and XVII., were the only ones with severe symptoms; it was doubtful, at one time, if Case VI. would recover. Of these, Nos. II., V., and VI. were unvaccinated. In Case IV. there was no evidence of any vaccination. In Case XI. it was doubtful if the vaccination had "taken," and of course no protection would have been afforded by the operation unless it was a successful one. In Case XVII., nearly forty years had elapsed since his vaccination, and, as often happens, the protective influence had in great measure passed away. To obtain the full protection afforded by vaccination against this loathsome disease, it is necessary that re-vaccination should be performed at least once at, or after puberty.

Those who have had most experience in dealing with Small-pox are most struck with the power of vaccination *to modify it,* where it does not actually prevent an attack. To take only the above limited number of cases as an illustration; wherever the person is only partially protected, the modified disease bears no more resemblance to the disease as it occurs naturally, in the body of one, whose system has been uninfluenced by the vaccine disease, than a cut finger does to a smashed limb. And, probably, it is largely due to the fact that in recent years the public has seen so little true, unmodified Small-pox, that the disease has begun to lose its terrors, and people have become less mindful of its power to disfigure, maim, and destroy, when it meets with a soil suitable for its development in the bodies of unprotected individuals.

Influence of Vaccination in modifying Small-pox.

Scarlet Fever.—It was recorded in last year's report that Scarlet Fever had decreased in the Borough to an extent not hitherto met with since notification came into operation. This gratifying decrease has continued throughout the year under review. The total number suffering from this disease has been only 132, of whom four died. The bulk of the cases have been of a mild type, and it is satisfactory to note that 86 of these were removed to the Fever Hospital, and there properly isolated. In most of the cases where the patients remained at home, there existed satisfactory means of isolating them from the rest of the family. So large a proportion of Scarlet Fever removed to Hospital, from any community, is a rare occurrence, and there can be little doubt that to this efficient isolation is due, in great measure, the fact of our comparative immunity at the present time, seeing how prevalent the disease has been during the year, in many other parts of the country. But although the town is at present, and may be said to have been for some time past, almost free from Scarlet Fever, one must not be too sanguine as to its continued immunity therefrom. Prompt notification and vigilant isolation are without doubt powerful means of combating its spread; but there are weak points in our armour which require amending, to say nothing of those obscure and unknown causes which appear to be at work, by which waves of epidemic prevalence pass at intervals through communities and countries.

Decrease of Scarlet Fever.

Need for more stringent supervision.

Thus, it is certain that milk may be the means of spreading this disease broadcast among the people, and there is very strong evidence to show that the infection is not always conveyed to the milk after leaving the cow, but that the cow herself may, when suffering from certain ailments, INFECT HER OWN MILK SUPPLY. All this only makes the need more pressing for a thorough supervision of farms and dairies, and is another strong argument for the more general extension of compulsory notification of infectious disease.

A case of Scarlet Fever may exist at a dairy farm, the milk from which may be taken miles away, to some large town which has protected itself by notification, and there be the means of causing an outbreak of Scarlatina, which may obtain widespread proportions, before the source thereof can in any way be traced.

Typhus Fever.—This disease has not been seen in Leicester now for many years. Throughout England, even in those towns where formerly it most prevailed, Typhus is fast disappearing, and the time would appear to be fast approaching when Typhus will be added to the list of extinct diseases, so far as England is concerned.

Typhoid prevalent in early part of year.

Typhoid Fever.—At the close of 1887, Typhoid Fever was unduly prevalent in the Borough. This prevalence continued into the beginning of 1888, so that during the first quarter of last year a considerable increase was seen, over the usual number of Typhoid cases met with at that time of the year. In the streets abutting upon Abbey-gate, a number of cases occurred without any satisfactory local cause being discovered, unless it might be found in the fact that an infected sewer ran through this neighbourhood. Efficient flushing and disinfection of this was carried out, and most of the open street ventilators closed. This latter action was also taken by order of the Sanitary Committee in the lower part of the town, where the sewers are flat and have but little fall. In the district bounded by

Church-gate, Upper Brunswick-street, Archdeacon-lane, Britannia-street, Palmerston-street, Humberstone-road, and Humberstone-gate, the whole of the ventilating shafts from the sewers, opening at the road level, were closed. The disease, which was scattered more or less all over the Borough, slowly abated, and during the summer and autumn quarters the town was unusually free from Typhoid. The number of persons who have been reported as suffering from it was 261, as against 222 in the year before. The deaths were 32. At the time of writing, the Borough continues almost free from this ailment. (See also Part III.).

Very little true Diphtheria.

Diphtheria.—Of this disease, 67 cases were reported, whilst in 1887 there were 81 notified. Considering that in many of our large towns, and notably in London, Diphtheria has shewn a marked tendency to increase, the above returns cannot be considered unsatisfactory, the more so when it is stated that the bulk of these were young children, and were often more of a croupous character than that of true diphtheria; indeed, true diphtheria of a severe type, or followed by paralytic sequelæ, is almost unknown in Leicester. (For mortality, &c., see Part III).

Puerperal Fever.—Happily, cases of Puerperal Fever have again been but few in number. Out of the eight cases reported, two proved fatal. As in former years, with a view to taking all possible precautions to prevent this terrible disease from being spread, whenever a case has occurred in the practice of a midwife, and any suspicion has attached to the latter, she has been called upon by the Sanitary Committee to abstain from attending her work, until a thorough and efficient disinfection of herself and clothing had been accomplished, some compensation being made to her for the time she was debarred from earning her living.

Erysipelas.—The remarks made in former Health reports respecting the notification of this disease are still applicable. Although 255 cases have been notified, the majority of them have been of a slight character, and certainly of no significance from a sanitary point of view, and the expense incurred in respect of these is in no wise compensated for by any advantage derived, either by the patients or by the Health Authorities.

Uselessness of notifying Erysipelas.

Diarrhœa.—The year has been marked by the small number of deaths from Summer Diarrhœa. It has long been acknowledged by all who have paid any attention to this subject that the prevalence or absence of this disease is dependent in some way upon a higher or lower temperature. The past summer was notable for the absence of bright sunshine, and as a consequence we experienced a summer temperature much below the average. The effects of this low temperature were also accentuated by a wet season; not that the total rainfall was so very excessive, but it was continuously spread over the summer months. Thus, through the whole of July and August there were only 27 days on which rain did not fall in sufficient quantity to be measured, and only a week, *i.e.*, from August 11th to 18th, when there were more than three consecutive days without rain, as recorded by the rain guage in the Town Hall Square. From the middle of September to the end of October much fine weather prevailed, but of course, at that late period, nothing like intense summer heat was experienced. Here, then, we have the general explanation of the diminished prevalence of Diarrhœa. Only 148 deaths occurred, as against 247 in 1887. Medicine was again distributed gratuitously, in the poorer districts of the town, to 4541 persons, of whom 3062 were over ten years of age.

Decrease of Mortality from Diarrhœa.

The plan adopted in the preceding summer, of watering the streets with a dilute solution of a disinfectant, was again pursued; but the utility of this will be more thoroughly tested during a hotter season.

The observations and experiments carried on in the two preceding years have been continued, and the subjoined report contains the results thereof, which have from time to time been presented to the Sanitary Committee. It has been a source of disappointment to your Officer of Health that the report upon this subject, which has been so long looked for from the Local Government Board, has not yet been published, as it was hoped that the mass of information obtained from various parts of the country, during the prolonged enquiry by that department, an enquiry instituted at the request of your Committee, might possibly have thrown more light on this difficult problem, and have suggested some additional line of investigation to that hitherto pursued.

A Report to the Sanitary Committee upon some observations and enquiries made during the summer of 1888, in continuation of those of the two preceding years, as to the prevalence of Diarrhœa in Leicester.

MR. CHAIRMAN AND GENTLEMEN,

During the summer just ended, several features of interest have presented themselves, in connection with the enquiries I have continued to carry on into the causes of the excessive prevalence of Summer Diarrhœa in Leicester. First, the very great decrease in its prevalence during the past season is to be noted, and second, the late period of the summer before the disorder began to prevail. Both these circumstances are to be explained by the weather conditions we experienced, *i.e.*, a *cold* and *rainy* summer season. Only 148 deaths were recorded, the smallest number met with since 1882, when 101 deaths occurred, amongst a population estimated to have been some 20,000 less than at the present time.

Throughout the country at large, a marked decrease has this year been seen in the Diarrhœa mortality, but Leicester still occupies *the same relative position* among the other large towns as in former years, standing highest but one on the roll for Diarrhœal mortality. Preston only, as it did last year, had a higher death rate than our town. In reviewing these deaths in the twenty-eight large towns of the kingdom, one point immediately attracts notice. We find that *the time at which* the mortality reaches its highest point *varies considerably* amongst these towns. Thus at Oldham, which suffers least, the maximum was reached in the week ending July 28th. In London, Wolverhampton, Liverpool, and Salford, the highest mortality, and therefore, inferentially, the greatest prevalence of the disease, was not attained until the week ending August 25th; in Halifax and Leeds it was reached in the following week; whilst in our own Borough, in Norwich, Birmingham, Nottingham, Bolton, Preston, Huddersfield, and Sunderland, the maximum mortality occurred in the week ending September 8th. In the following week, Brighton, Plymouth, Birkenhead, Sheffield, and Hull, reached their highest rate; in the week ending September 22nd, Cardiff, Bradford, and Manchester attained their maximum; whilst in Portsmouth, Bristol, Derby, Blackburn, and Newcastle, the highest mortality of the summer did not occur until so late as the week ending Sept. 29th. A consideration of these facts leads one to think that, if the local conditions of situation, soil, and varying meteorology, were to be carefully ascertained and compared, much light might be thrown upon the causes at work producing this disease. Why, for instance, this summer, should the disease in Oldham (a manufacturing town in Lancashire, where the Diarrhœa mortality is very low,) have reached its maximum so early as July 28th, whilst in Blackburn and Manchester, *both in the same county*, it did not reach its highest fatality until *eight weeks* later; and in Preston, Leicester, Leeds, Sheffield, Norwich, and Bolton, all towns which suffer to a great extent, the disease was at its height at a still later date.

I stated in my report to you upon this subject, last year, that, as the result of my observations, I had arrived at the conclusion that the contamination of the air of those districts of the town where the disease most prevailed, with bacterial organisms, was the prime cause of the disease, and I adduced some strong evidence in support of this contention. I further shewed that the onset of the disease did not occur until the *temperature of the soil* had reached nearly 60° F. at a depth of one foot from the surface, and that a pollution of the soil with organic filth was a possible, and indeed a highly probable, explanation of this pollution of the air with micro-organisms and their spores.

During the summer just ended, I have continued and extended my enquiries upon the same lines hitherto pursued by me, and I have examined not only the atmosphere but also the soil of various districts of the town. The diminished prevalence of the disease was in some respects not favourable to the prosecution of these researches, whilst, on the other hand, this very diminution and late onset was not altogether without its lessons, as a consideration of the following results shew.

The accompanying Table is in continuation of those published for the years 1885, 1886, and 1887, and confirms what I have already stated, that the disease does not commence until a certain subsoil temperature has been reached. In 1885 the soil had reached a constant temperature of 60° F., at about the first week in July, and the disease rapidly spread. In 1886 it was a little later, and in 1887 it was as early as the last week in June that this degree of temperature was reached, and the disease appeared correspondingly early.

1888.

Date.	Ærial Temp.		Diarrhœa Deaths.	Earth Temp.		Rainfall in Inches.	Date.	Ærial Temp.		Diarrhœa Deaths.	Earth Temp.		Rainfall in Inches.
	Max. Temp.	Min. Temp.		1 ft.	4 ft.			Max. Temp.	Min. Temp.		1 ft.	4 ft.	
July 1	73·5	48·0	..	..	..	0·03	Aug. 16	72·0	43·0	3	60·0	57·5	0·000
,, 2	59·0	53·0	..	58·0	54·0	0·62	,, 17	59·0	48·0	3	60·0	57·5	0·000
,, 3	70·5	52·0	..	56·0	54·0	0·00	,, 18	65·0	45·0	1	59·5	57·2	0·000
,, 4	74·0	51·0	..	58·0	54·0	0·36	,, 19	71·0	52·5	2	60·5	57·0	0·015
,, 5	..	..	..	59·0	53·0	0·05	,, 20	70·0	53·5	3	60·2	57·1	0·345
,, 6	..	..	1	59·0	54·0	0·00	,, 21	69·0	51·5	2	60·0	57·0	0·030
,, 7	..	..	..	58·0	53·0	0·00	,, 22	71·5	52·0	2	60·2	57·0	0·000
,, 8	..	..	..	..	..	0·12	,, 23	65·0	56·0	2	60·2	57·1	0·005
,, 9	71·0	41·0	4	58.0	55·0	0·02	,, 24	..	..	3	60·0	57·2	0·070
,, 10	..	..	..	57·0	55·0	0·62	,, 25	..	..	4	59·2	57·0	0·000
,, 11	..	..	..	56·0	54·0	0·13	,, 26	..	..	..	60·0	57·0	0·000
,, 12	58·0	44·0	1	56·0	54·0	0·00	,, 27	..	.	2	60·0	57·0	0·170
,, 13	69·0	54·0	..	58·0	55·0	0·00	,, 28	74·5	48·0	1	60·3	57·0	0·970
,, 14	75·0	55·0	..	58·0	55·0	0·21	,, 29	65·5	46·0	1	59·3	57·0	0·030
,, 15	58·0	52·0	..	58·0	54·0	0·78	,, 30	63-0	45·0	5	59·9	57·0	0·290
,, 16	68·0	56·0	..	58·0	54·0	0·00	,, 31	65·0	44·5	1	60·0	57·0	0·000
,, 17	72·0	54·0	1	60·0	55·0	0·36	Sept. 1	63·0	52·0	6	60·0	57·0	0·000
,, 18	70·0	55·0	..	60·0	55·0	0·00	,, 2	..	..	3	60·0	57·0	0·095
,, 19	78·0	56·0	1	60·0	55·0	0·04	,, 3	..	..	2	59·6	57·2	0·000
,, 20	68·5	53·0	..	61·0	55·0	0·13	,, 4	66·0	57·0	4	59·6	57·0	0·000
,, 21	71·0	55·5	..	60·5	55·5	0·00	,, 5	65·0	53·0	4	59·6	57·0	0·215
,, 22	72·0	56·0	..	60·0	55·5	0·19	,, 6	65·0	49·0	3	60·1	57·0	0·010
,, 23	70·0	52·5	..	61·5	55·5	0·235	,, 7	61·0	47·0	1	58·2	57·0	0·160
,, 24	70·5	55·0	..	61·0	55·5	0·060	,, 8	60·0	48·0	2	57·0	57·0	0·000
,, 25	62·0	52·0	1	61·0	56·0	0·055	,, 9	..	..	2	57·0	56·8	0·220
,, 26	72·0	48·0	..	59·5	56·0	0·005	,, 10	61·0	44·0	2	56·1	56·8	0·000
,, 27	67·0	56·0	1	59·0	56·0	0·200	,, 11	67·0	44·0	2	56·1	55·5	0·000
,, 28	58·5	50·0	3	59·0	56·0	0·140	,, 12	..	..	2	55·4	55·8	0·000
,, 29	63·5	53·0	1	59·0	56·0	0·305	,, 13	68·0	41·5	3	55·5	56·2	0·000
,, 30	53·5	48·5	2	59·0	56·0	0·030	,, 14	71·0	51·0	2	55·5	56·2	0·000
,, 31	60·0	49·0	..	59·0	56·1	0·000	,, 15	69·0	51·5	2	57·0	56·2	0·000
Aug. 1	65·0	48·0	..	57·2	56·1	0·000	,, 16	64·5	45·5	4	57·0	56·2	0·000
,, 2	73·0	47·0	..	57·9	56·1	0·250	,, 17	66·0	46·0	..	57·1	56·2	0·000
,, 3	72·0	53·0	1	59·0	56.1	0·000	,, 18	61·5	48·0	1	57·6	56·2	0·000
,, 4	..	..	..	60·2	56·1	0·210	,, 19	66·0	52·0	2	57·2	56·1	0·000
,, 5	..	..	1	59·5	56·0	0·000	,, 20	70·0	52·0	3	57·3	56·2	0·000
,, 6	66·0	49·0	..	58·5	56·0	0·070	,, 21	68·0	51·0	2	58·8	56·0	0·000
,, 7	81·5	58·0	1	59·0	56·5	0·000	,, 22	61·0	48·0	1	58·7	56·0	0·000
,, 8	74·5	55·5	..	59·5	56·5	0·000	,, 23	65·0	50·0	1	..	..	0·010
,, 9	84·5	61·0	..	60·0	56·8	0·000	,, 24	55·0	50·0	2	58·6	57·0	0·700
,, 10	85·0	60·0	..	60·0	57·0	0·010	,, 25	..	..	1	58·5	57·0	0·000
,, 11	..	..	5	62·5	57·0	0·000	,, 26	..	..	1	57·6	56·4	0·000
,, 12	..	..	..	63·0	57·0	0·000	,, 27	..	..	4	56·0	55·8	0·005
,, 13	..	..	2	63·5	57·2	0·000	,, 28	63·0	40·0	1	55·6	55·4	0·050
,, 14	..	..	1	63·0	58·0	0·000	,, 29	62·5	41·0	..	56·0	55·6	0·000
,, 15	..	..	..	61·0	57·9	0·000	,, 30	52·0	36·0	..	..	..	0·000

Owing to the discontinuance of the Meteorological Observations at the Town Museum, I have obtained the above ærial temperatures from Alderman Barfoot, and the rainfall from J. Gordon, Esq., Borough Surveyor, to whom I would express my thanks. The earth temps. were taken under my own supervision. H. T.

During last summer, it will be seen that the subsoil did not rise to 60° F. until after the middle of July, and consequently, we find the disease did not prevail until the end of that month. But even later than this, at the last week in July and the first week in August, the subsoil temperature, instead of being maintained at that heat, actually fell below 60°; and not until the middle of August was it maintained steadily at the above temperature. As a consequence, not until the same time, or rather a little later, did the disease really become fatal.

But further, I would direct attention to an important and suggestive fact. In the first week in August, I made an examination of the air in four districts of the Borough—in Chester-street, Russell-square, in Waring-street, on the Victoria Park, and in Asylum-street—adopting the same methods, with Hesse's apparatus and sterilized nutrient gelatine, as last year. Three litres of air were collected in each instance, with the following result :—

	On the sixth day from collecting air.	On the eleventh day.
Chester-street	No organisms.	9 bacteria and 4 moulds.
Waring-street	No organisms.	3 bacteria and large mycelial growths.
Asylum-street	No organisms.	6 bacteria and 4 moulds.
Victoria Park	One organism.	2 bacteria and 2 moulds.

The gelatine in each instance had become scarcely liquified at all around the growths, and very little odour of any offensive character was developed. Cultivations made from these also grew but slowly, and did not give rise to the offensive smelling fluid of those obtained from the air, at the time when the temperature of the weather had increased, and the disease had become prevalent. In the first week in September, when the disease had attained its maximum, I again examined the air of the same localities, with the following results :—

	On the 6th day from collecting the air.
Chester-street ..	Innumerable growths and gelatine completely liquified.
Waring-street ..	4 bacteria around which gelatine liquified; numerous moulds.
Fairfax-street ..	8 bacteria; the gelatine round these quite fluid.
Victoria Park ..	2 bacteria, gelatine solid; 2 moulds.

Here is seen a marked difference in the two sets of observations; in the latter not only were the organisms more in number, but they grew *more quickly and more vigorously* under the same conditions as the first series, and

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MAY 90
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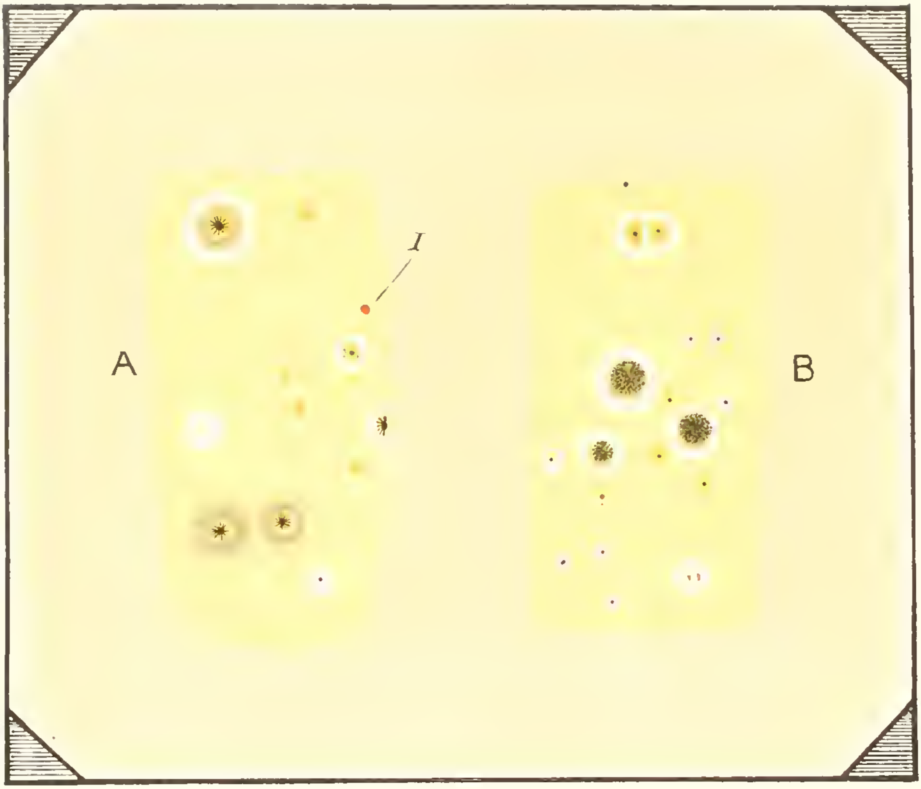

Fig. 1.

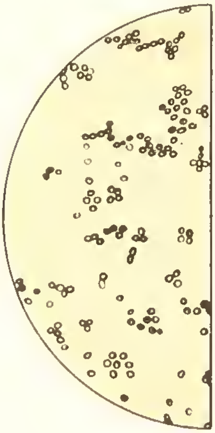

Fig 3.

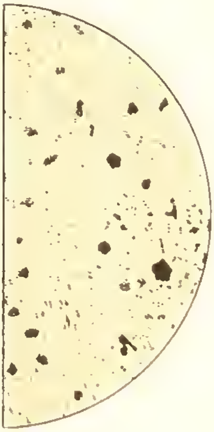

Fig 2.

what is probably of more importance, they liquified the nutrient media in which they were growing, and developed (with the exception of the tube from the Victoria Park) the offensive odour, &c., corresponding with the results of last year. Secondary cultivations, from the growths of these liquified patches, gave the same results as those described in my last report. These secondary cultivations contained innumerable micro-organisms not all alike: the majority were micro-cocci; whilst there were also constantly found small baccilli, of which *Fig.* 2 is a drawing reproduced from a photograph. The cultivations in which these baccilli were most numerous possessed the more offensive smell, much more marked in the second series of experiments than in those of the first series, of August. These results agree with last year's observations. In addition to examining the air by means of Hesse's apparatus, I exposed plates coated with gelatine at the same places, and during the same time that I was conducting the former observations. The growths upon these plates are shewn in the engraving *Fig.* 1, where A and B are two layers of nutrient of gelatine, spread out on the surface of a glass plate, upon which the organisms of the air fell and developed themselves.

That marked A was neutral, or very slightly alkaline; that marked B had the faintest trace of an acid reaction. I would direct attention to the growth marked *I* on the patch A. It is seen to be of a bright red colour, and *Fig.* 3 is reproduced from a photograph of the micro-organisms of which it is composed. It is apparently the one known to bacteriologists as *micrococcus prodigiosus*, and has not, that I am aware of, any special pathological significance; but this summer it appears to have been very common in the lower districts of the Borough, as many of the exposed plates shewed it, whilst in previous years it has not been noticed by me. I have alluded to it, as shewing that these minute forms of life have apparently, like the larger forms of vegetable life, special seasonal prevalences; but the conditions, favourable or otherwise, under which they grow and flourish, and, in fact, their whole life history, properties, and peculiarities, we at present know but little of, and have as yet touched but the borderland of this wide field of research.

As I stated above, in addition to these examinations of the air, I have made some observations upon the soil of various parts of the town. This report is scarcely the place to go into the details of the processes adopted, but I will briefly give the results. I obtained soil from Redcross-street, a few inches below the surface, and also at a depth of twelve feet, the latter from around an old sewer; also from Braunstone-gate, at a depth of some eight or nine feet, which had evidently been contaminated with sewage matter; from King Richard's-road (corner of Alice-street), a foot below the surface; from the Pasture, about eight inches below the surface; and the same from

Victoria Park. The samples from Braunstone-gate, and that from the greater depth in Redcross-street, swarmed with micro-organisms, which, when cultivated in gelatine, rapidly and completely liquified it, and developed a sickening ammoniacal odour. That nearer the surface, in Redcross-street, was almost as bad, but the growths were not quite so numerous. That from King Richard's-road had less than one-third of the number, and the cultivations from them produced but little odour; while the two samples from the Pasture and from Victoria Park had still less, and were comparatively few in number.

To sum up, where the soil was known to be polluted, here the micro-organisms existed in enormous numbers, and apparently amongst them were some of a similar character to those found in the air of the lower-lying districts of the town. Their behaviour when cultivated, their mode of growth, and the production of some substance possessing a most unpleasant and offensive odour, all were similar to those I described fully to you last year, as resulting from the cultivation of the microbes of the air, in the Diarrhœa districts of the town, and confirmed again by this year's experiments. Although at present I am not able to produce evidence which is conclusive, still I am strongly of opinion that the particular micro-organism concerned in the production of Diarrhœa, or perhaps, more correctly speaking, concerned in the production of something in the nature of a ferment, or alkaloidal substance, which latter is probably the actual producer of the disease, is one similar to those figured in *Fig.* 2, which is reproduced from a photograph, and where large numbers of small baccilli are well shewn.

As the result of another year's experience, I have no reason to modify, but rather to affirm more strongly, the conclusions I arrived at in my last report to you, *i.e.*—

1.—That there is, and has been for a long time past, a polluted condition of the soil, especially in the older parts of the Borough.

2.—That in those districts where, and at the time when, Diarrhœa most prevails, the atmosphere is contaminated with enormous numbers of microbes and their germs.

3.—That these latter are, in all probability, the prime factors in the causation of the disease, and that the position of the town, and its large proportion of infants, among an artizan population where much female labour is employed, together with ignorance in the proper management and rearing of infants, tend to intensify the evils, and to increase the mortality therefrom.

In other countries, notably in America, investigations into the causes of Summer Diarrhœa have been extensively pursued, and a conjoint report has recently been published* by Drs. Meig, of Philadelphia, and Simon Baruch, physician to the New York Juvenile Asylum, from which I quote the following *summary* :—"The causes producing the disease are—(1). Insanitary conditions. (2). Artificial feeding. (3). High atmospheric temperature. These causes are only accepted as predisposing elements, favouring the development of bacteria, which are to be regarded as the potential causes of Summer Diarrhœa. Of these causes, the greatest share in the production of the disease is assigned to high atmospheric temperature, which favours the development and multiplication of bacteria."

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* *Medical News*, Philadelphia.

In conclusion, I would also quote a few lines from the Health Report of Cardiff, by Dr. Walford, who says, speaking of Cardiff:—"At one time this town was notorious for an excessive mortality from infantile diarrhœa, the death-rate from it during the years 1847-54 being 17½ per 10,000 of the population. During the succeeding period, however, the death-rate had fallen to 4½. This extraordinary diminution is attributed, with good reason, to the improved sanitary condition of the town, consequent upon the completion of vast drainage works, and the provision of a water supply."

If such has been the result obtained at Cardiff, we may fairly hope that when Leicester has completed its large sanitary works, now in progress, we also may find a relief from this long continued scourge.

I am, Gentlemen,

Your obedient servant,

HY. TOMKINS.

Measles and Whooping Cough.—Both these diseases have existed to a large extent. As neither of these are included among the diseases reported, their prevalence can only be judged of from the mortality caused by them, and from casual information supplied by the medical practitioners of the town. During the first half of the year, Whooping Cough was wide-spread in almost all districts of the Borough; as this declined Measles advanced, and at the close of the year this latter disease was causing a large infantile mortality. In November circulars, setting forth in plain and simple language the means to prevent its spread, were distributed in all those neighbourhoods where the disease was known to exist, and thanks are due to the mission women attached to the Leicester Bible and Domestic Mission, for help in taking these to houses where children were suffering from Measles. It is, however, to be feared that at present the masses

Prevalence of Measles and Whooping Cough.

of the people are not sufficiently educated in these matters to make any real effort to check its spread. It is looked upon too often as a necessary infantile disorder, and this, coupled with ignorance and carelessness in the care and nursing of the sufferers, accounts for much of the mortality caused by it. It would seem probable, that ultimately the Local Health Authority will have to grapple with this ailment, as it has done with Scarlatina, and then, by efficient isolation, nursing, and a slow education of the parents, this infantile scourge may possibly be successfully diminished. Already, in some few places, attempts in this direction have been made, but it is necessarily a costly piece of business.

Causes producing Measles fatality.

Epizootic Disease.—During 1888 there has existed but little disease among the lower animals which has any direct connection with disease in the human subject. From information supplied by your Veterinary Inspector, it appears that no case of Pleuro-Pneumonia, or Foot and Mouth disease, has appeared in the town during the past twelve months, and that Swine Fever appeared in only four places, *i.e.*, Abbey-gate, North-gates, Narboro-road, and St. Peter's-lane, involving altogether only thirteen animals. By at once slaughtering the diseased animals, and taking the usual precautions, in no instance did the disease spread.

Swine Fever.

At the Cattle Market, no diseased animals were found, that is to say, no disease which is included under the Contagious Diseases (Animals) Act; but your Inspector remarks that "I am persuaded that were Tuberculosis included in the Act, we should see fewer 'screws,' as they are termed, in both the dead and live meat market."

Anthrax.—One case of this disease was found by the Meat Inspector, in some pieces of beef which were brought into the market, though no attempt had been made to dispose of the same before calling the Inspector's attention to it. Microscopical examination at once demonstrated the presence of the disease, and the meat was destroyed.

Diseases communicable from Animals to Man.—It may not be out of place, while speaking of Epizootic Disease, to allude to the increased interest which is being taken, at the present time, in the possibility of disease being transmitted to man from those animals which form part of, or contribute to, our food supply, more especially to the possibility of Tuberculosis being thus transmitted. Under the term "screws," alluded to above by your Veterinary Inspector, are included a large number of animals suffering from this disease, which disease, except in very advanced stages, has hitherto not been deemed to render animals unfit for human food. No doubt, in the early stages, not much risk is involved, and by a thorough and complete cooking of the meat, even from very diseased animals, the danger of transmission is prevented and minimized, as in some other diseases. Seeing, however, that it has been demonstrated by actual experiment that animals fed on raw, or partially cooked flesh of tuberculous animals, are easily infected thereby, the time appears to be ripe for some official investigation into this subject, seeing how important are the interests involved, and how wide-spread are tuberculous diseases throughout the whole community.

Dangers from diseased meat.

A special Congress of Veterinary Surgeons and Medical Men was held last August, in Paris, on this subject, and in the Public Health Section of the British Medical Association's Meeting, at Glasgow, in July, the same matter was very fully discussed, and a resolution moved by Principal Whalley (of the Veterinary College, Edinburgh), and seconded by Dr. Farquharson, M.P., was carried unanimously, that "The Public Health Section of the British Medical Association approves of the action of the Government, in inquiry by Commission into the relationship of bovine and human Tuberculosis, and urges that, as soon as possible, such measures be taken as the report of the Commission may show to be advisable." Copies of this resolution were forwarded to the Local Government Board.

Congresses to consider spread of Tuberculosis.

New Drainage Scheme, Sewers, &c.—The new main drainage scheme for the Borough, which has now been in

New main sewers.

progress some two years, has made fair headway during the past twelve months. That section in the Martin-street and Brandon-street districts, which will provide for the Humberstone and Evington drainage, is completed, and consists of 861 yards of sewers, varying in size from 4ft. 9in. by 3ft. 2in. to 3ft. 6in. by 2ft. 4in. That section of the work along Belgrave-gate, from Syston-street to the Clock Tower, and from Pasture-lane bridge along Lower Church-gate, Church-gate, Gallowtree-gate, Granby-street, and Northampton-street, with branches in Friday-street, Archdeacon-lane, and Bedford-street, is, at the time of writing, also well in hand.

In addition to this special work, new sewers, both foul and storm, have been constructed in public and private streets, as shewn in the accompanying table, which gives the total work of this character completed since 1881. 2290 yards of old sewers, in various parts of the Borough, have been opened up, cleansed, and provided with inspection shafts, during the year; so that one may begin to hope that we are now not far distant from the time when the sewers of the town will be in a much more satisfactory condition than heretofore. The work hitherto accomplished has resulted in marked benefit, and especially to those portions of the low-lying districts through which the new sewers have passed, where cellar flooding and backing up of the sewers is now almost unknown.

Sewer Construction, Cleansing, &c., during 1888, and since 1881.

	Length in yards of new Foul Sewers	Length in yards of new Storm Sewers.	Length of old Sewers [in yards] opened up and cleansed, and provided with inspection shafts.
During 1888	5948	3429	2290
From 1881 to 1887 ..	20,690	26,805	31,223
Total ..	26,638	30,234	33,513

The other works in connection with the new drainage scheme and sewage farm are also progressing. The foundations for the new engine-house have been completed, at a cost of £4404, and a contract for the erection of the engine-house, &c., which will cost £10,816, is just accepted; and the engines for the same are being constructed by Messrs. Gimson & Co., for the sum of £22,629. A large part of the work of laying a double line of 33in. cast iron mains, at a cost of about £13,000, to convey the sewage from the pumping station to the farm at Beaumont Leys, is completed. Work on the farm itself, consisting of new roads, tanks, culverts, &c., is in hand to the extent of more than £14,000.*

Sewage farm.

Before leaving the subject of the sewers, attention may be called to some experiments which were carried on at the Sewage Works, during the end of the summer, with a new material for treating sewage effluents, which apparently gives results such as have not hitherto been obtained by any other mode of *chemical* treatment, rendering the effluent free from nuisance or smell.

This material has been introduced by the "International Water and Sewage Purification Company." It is a mineral found in large quantity in Wales, and appears to contain a quantity of some iron compound, in a peculiar condition. The process consists in first precipitating the raw sewage with what the patentees call "ferrous carbon, or ferozone," and then passing the supernatant liquid through a filter bed of "magnetic spongy carbon, or polarite;" this latter having magnetic properties, or, more correctly speaking, is attracted by a magnetic in the same way as metallic iron.

Sewage purification.

At our Sewage Works an experimental filter was constructed, capable of dealing with a comparatively small quantity, 20,000 gallons per day, and the filtrate or effluent thus obtained remained free from smell, or unpleasant odour, or deposit (with the exception alluded to below), for a space of three weeks, exposed in a large tank to the sun and air. Fish also lived in the same for more than a fortnight, a striking proof of the comparative purity of the water. There was a green deposit upon the bottom of the tank, small in quantity, and containing some combination of iron, but entirely free from anything like sewage or sewage sludge, as seen in most effluents after chemical treatment. Samples of the same effluent were kept by your Officer of Health in incubators, for three weeks, at a temperature of nearly 90 deg. F., with the same result, the sample remaining free from putrefaction even to the present time.

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* For these details I am indebted to the Borough Surveyor, Mr. Joseph Gordon, C.E., from whose designs and under whose supervision these extensive works are being carried out.—H. T.

These facts were brought to the notice of the Highway Committee in September, and had it not been for the fact that Leicester is too far committed to the treatment of its sewage by land irrigation at Beaumont Leys, it would have been certainly desirable to have given a more extended trial to this method during the coming year; the more so as the summer of 1888 was one with a very low temperature, and absence of much bright sunshine. The same favourable reports of it are given by Sir Henry Roscoe as to the results obtained at Acton, where the whole of the sewage is treated by this method.

Progress of Flood Works.

Flood Works.—Considerable delay has been caused to the completion of the Flood Works scheme, owing to the difficulty in obtaining the necessary land along the river side. The upper part, however, in the Freemen's Meadows, near the railway viaduct, is finished, consisting of a large basin and weir, new lock, and stone embankments.

This section has cost £18,000. The remaining portion, between the upper and lower sections, running through the Bede House Meadows, is now in course of completion, the contract for it being £31,972. This sum does not, however, include the cost of bridges or boulevards, which latter will extend from the first new bridge to Braunstone-gate.

Since 1882, the town has been almost free from any river overflow and street flooding, and it was thought by many that the work so far accomplished would suffice to prevent anything of the sort occurring again ; but at the time of writing this report (March 8th, 1889), a disastrous flood has once more visited the district adjoining the upper reach of the river. A continuous rainfall, on the 7th and 8th March, caused such an increase in the volume of water brought down the valley, that the contractor's works were flooded, and his plant swept away. This, floating down the river, considerably blocked up the archway of the bridge under the West Bridge Station, at the corner of Turner's factory, which probably contributed to the overflow of the river higher up the stream. It is confidently expected that when the work now in hand is finished, we shall see no more such catastrophes, damaging alike to the health and comfort of the people.

Floods in West End districts.

Open Spaces and Recreation Grounds.—During the year under review, Leicester has not added to its Parks or open spaces. Now, however, that the Flood Works at the west end of the town are approaching completion, a large piece of land will soon be available for the Corporation to convert into a recreation ground, a provision which will be appreciated by the residents in that district, as this part of the Borough is at present the worst supplied with open spaces or public Parks. The remarks made in last year's Report anent the covering of large districts with bricks and mortar, without reserving any part thereof as lungs or breathing spaces for the community, may again be emphasized. Once the land has passed into the hands of the builder, it has practically become impossible ever to create any large open spaces there, and yet nothing is more certain than this, that one of the most potent factors in conducing to a healthy population is abundant provision of such spaces, to counteract the dense aggregation of human beings on every acre of land available for building purposes.

Need for open spaces.

New Baths.—One result of the large operations in connection with the Flood Works will be the provision of a commodious and well-arranged open air Bathing Station, at the Bede House Meadows, near the junction of the new canal cutting with the river. The old makeshift bathing place has been abolished by the progress of the Flood Works. The new one will measure 100 yards in length by 30 yards in width at the widest part, having a superficial area of 2100 yards. The retaining walls, &c., are substantially built of brick and stone. The whole will be closed in by a wooden fence, and provided with proper dressing boxes, caretaker's room, &c.

Provision of new Baths.

The sanction of the Council has also been obtained for the erection of new Public Baths in Humberstone-gate, and plans for the same passed. Application has been made for permission to borrow the money needed for their erection, and the work will be begun forthwith. The cost is estimated at some £6000. Two swimming baths and a number of slipper baths, &c., will be provided.

Seeing how greatly the population has increased since the erection of the old Baths in Bath-lane, the new buildings will meet the demands of a large community for whom Bath-lane is at too great a distance, and the Committee have every hope that the new Baths will prove as great a success financially as the other. During the year 48,009 admissions to the penny swimming bath, and 18,911 to the first-class swimming bath, were paid for. 356 bathers used the new ladies' swimming bath, and 14,771 persons used the various slipper and shower baths. The total receipts amounted to £949, leaving a small balance, after all working expenses were paid.

Owing to the comparatively cold summer, the receipts at the open air Bathing Stations, in the Pasture and St. Mary's, were less than in the preceding year, amounting to only £25 14s. 3d.

Houses Condemned.—One house only was condemned during the year as absolutely unfit for human habitation—this was situate in Bedford-street; but a great many on the verge of unfitness have been ordered to be improved, and rendered as habitable as such wretched and unhealthy places can be. To the remarks made in last year's report on this subject there is not much to add. But little progress has been made in the removal or demolition of the small, improperly ventilated cottages that exist in some parts of the town. It is to be hoped that by the provision of good and well-built cottages, constructed in accordance with sensible building laws, and which are springing up rapidly in many parts of the outskirts of the Borough, the people may ultimately themselves, to a large extent, forsake the pent-up cottages and rooms of the more crowded courts and streets, feeling that above all things health and vigour is of paramount importance to them and their children, and that they will put up with the slight inconvenience of a ten or fifteen minutes' walk, for the sake of purer air and healthier homes. But, doubtless, there will always be a certain section of the community whose means do not allow them to obtain more than a two or three-roomed cottage, and it is these who will have, under present conditions, to live in the slums and courts of the Borough, and for whom, possibly, something might be done under the powers of the various "Artizans' Dwellings Acts."

Old cottage property.

Artizans' Dwellings.—The Committee alluded to in last year's report as having been appointed to consider the need for, and desirability of, erecting a block of cottage dwellings under the provisions of the "Artizans' Dwellings Acts," was, on the motion of Mr. Councillor Richardson, re-appointed in November, no definite action having at that time been taken.

Provision of Artizans' Dwellings.

Since then the Committee has met, and is at present obtaining information as to the result of operations in this direction in other towns. Whether there be any pressing need in Leicester for such dwellings to be erected and controlled by the Corporation has been disputed. That there does exist a considerable number of the population who live in wretched tenements, and whose means apparently do not permit them renting more than two or three, and in some cases even only one room, the cases cited in my report for 1885 shew; to what extent this class exists is not certain, but might easily be approximately ascertained. Some of these wretchedly-housed people pay as much as 3/6 to 5/- per week for a single room furnished, if the few sticks they contain may be called furniture. For the man who can pay 5/- a week and upwards, for a cottage, it would seem that ample provision is made in the town; but it is when we come to lower rentals than this that a need for something to be done is met with. If a scheme can be devised and carried out, which shall provide decent and healthy habitations for those whose means are limited, say, from 2/6 to 4/- per week, it will probably meet with success, and it is to this object that the Committee will no doubt specially direct their attention.

Proposed new Model Lodging Houses.

Model Lodging Houses.—Partly arising out of the above, a project which has for a considerable time engaged the attention of the Sanitary Committee, to provide a model Lodging House, has taken definite shape. The need for some such action to be taken, with a view to remedy the present unsatisfactory condition of the common Lodging Houses of the town, has been strongly urged in the Health Reports of the past three years; and after having had the opportunity of seeing what has been done in some other towns, a scheme was prepared for the erection of one building, capable of accommodating 92 persons, and was presented for the approval of the Council in February of the present year.

After a prolonged and adjourned debate, the proposal thus to provide improved Lodging Houses was, however, rejected by a majority of one; but, at a public meeting since held to consider the matter, the action of the Council was called in question, and there is every probability of it shortly coming again before the Council, for reconsideration, and with more chance of a successful issue.

That the present common Lodging Houses of the town are such (with one or two exceptions) as to reflect discredit on the

Borough, no one denies; least of all those who are best acquainted with them. Not that the houses or rooms can be condemned as actually unhealthy in themselves, or unfit to live in, or that any nuisance, in the ordinary sense of the word, exists within their walls; but originally built as small cottage tenements, at a time when these were erected and arranged in a manner which would not now be permitted, by converting them into Lodging Houses for the accommodation of numbers of persons, men and women, single and married, often to the fullest extent to which the space permits, comfort or decency, to say nothing of morality, are next to impossibilities. These people, not all of them vagrants, thieves, or wastrels, are unable to help themselves, and it is either this or the Workhouse for many of them. Private enterprise has done nothing to remedy the present conditions, and it does appear but reasonable that the municipal authorities should avail themselves of the powers given under various Acts of Parliament to at least make a beginning, and lead the way in this much needed reform. Judging from the experience of some other towns, notably Glasgow, where the Corporation has erected large blocks of Lodging Houses, it may be expected that the receipts would be sufficient to pay the working expenses, and possibly produce a small rate of interest on the capital outlay; thus no additional burden would be added to the rates.

Slaughter-houses, Bake-houses, Factories, &c. —All the buildings and places within the Borough included under the above heading, together with those where any offensive operations are carried on likely to create a nuisance, have been regularly watched and supervised by the Sanitary Inspectors; and the fact that few complaints have been received during the year respecting the same, testifies that the inspection has been thoroughly carried out, and that, so far as the powers of the Health Authority go, they have been judiciously exercised. As to the Slaughter-houses of the town, it would be wearisome to refer at length to this subject again, so much has been said respecting them in the Health Reports of the last two years;

but the hope may be expressed that when the Council shall have satisfactorily dealt with the Lodging-house nuisance, it may see its way to take some action to abolish, at all events, the worst of these centres of filth, annoyance, and even dangers to public health and decency, from amongst the homes of the people; the more so as it has already provided ample accommodation for slaughtering in the abattoirs at the Cattle Market, which can, if necessary, be easily extended.

Disposal of Town Refuse.—The subject of making adequate provision for the disposal of the ash-pit and other town refuse, has occupied the serious attention of the Sanitary Committee during the past year. Hitherto, by means of "tips," and to a small extent by mixing with the contents of the night-soil pans, this material has been dealt with fairly satisfactorily; but the "tips" are becoming filled, and the town extending on almost every side, so that, with increased refuse to deal with, the Committee find themselves with less space and means for its disposal; it has thus been gradually forced upon the Committee that it will be absolutely necessary, in the very near future, to make further provision for dealing with this stuff by means of a "destructor." Several towns have been visited, with a view to ascertain whether the work carried on in a "destructor" can be conducted without causing a nuisance: those who have gone into the matter are fully persuaded that this can be accomplished. It may be mentioned here, that during the year the Committee have constructed and opened a sanitary shed, at the Great Northern Railway, from whence, by means of a siding, a considerable amount of the night-soil collected by the pan system is quickly transferred to the country districts, and there got upon the land. In the same way a limited quantity of ash-pit refuse is got rid of.

Need for refuse "destructor."

Gas Impurities.—It was stated in last year's Report that, owing to complaints made as to the impurities contained in the gas supplied to the town, it was under consideration to have an independent examination periodically made. In accordance therewith, your Medical Officer of Health has been supplied with the necessary apparatus, &c., and during a great part of the year has furnished weekly reports thereon. It is satisfactory to be able to state that in no instance has the presence of hydrogen sulphide been detected, this body being one of the most offensive and deleterious impurities; the amount of ammonia, too, has been but small. As to the other sulphur compounds, during the warm weather the quantity was kept within moderate limits, often below 20 grs. of sulphur per 100 cubic feet; but during the colder months of the year the amount has been much higher, often reaching nearly 30 grs. per 100 cubic feet.

Amount of Sulphur.

Water Supply.—For some years complaints have been heard in the Stoneygate and adjoining higher districts, of the water supply there, owing to an insufficient pressure in the mains. The Water Committee, during the past year, have remedied this by the construction of a new reservoir at Oadby, up to which the water is pumped; this part of the town is now as well supplied as others. In 1887, the total quantity of water for the supply of the Borough fell to a dangerously low limit, owing to the prolonged drought of that year.

New Reservoir at Oadby.

During 1888, as a result of the increased rainfall, no such scarcity was experienced. The Water Committee also took a wise step in raising the sill of the reservoir at Cropstone, thus impounding many additional million gallons which would otherwise have run away.

Looking, however, to the continued increase in the population of the town and neighbourhood, it has become incumbent to seek for an additional supply to meet the probable requirements of the future. Negotiations have been commenced for the acquisition of land to form a new reservoir, in which to collect the water of the district adjoining our present "gathering ground." *(For Analysis see Analyst's Report in Appendix.)*

Cremation.—Although no actual steps have yet been taken for providing Leicester with a crematorium, the subject has not altogether been neglected during the year. Early in November, a public meeting, presided over by the then Mayor (Mr. Ald. Wright) was held in the Museum Buildings, and was largely attended by many influential townspeople and others. Sir Spencer Wells, Sir Henry Halford, the Mayor, and others, addressed the meeting.

Proposed erection of Crematorium.

The need that exists for some reform in our burial arrangements was clearly set forth, and cremation was shewn to be the most efficient remedy to meet the requirements of the time, more especially as it concerns our large centres of population. A resolution was moved and carried, "That this meeting is of opinion that an effort should be made to provide a suitable crematory and chapel, for the Midland Counties, and that this resolution be conveyed to the executive of the Leicester Branch of the Cremation Society, and to any similar provincial society, with a view to practically carrying out this object. During the year past, the evils of our present system of burial were forcibly presented to the notice of the Home Secretary, by a deputation from the Church of England Burial Reform Association, who presented a memorial pointing out the scandals that have arisen in various parts of the country, notably at Glasgow, Manchester, Oxford, Wolverhampton, &c., where the results of over-crowded burial grounds are an offence both to public decency and health. There can be but little doubt that this matter is one which, in the near future, will have to be faced and dealt with, and in the meantime public opinion may well be usefully educated, by those who are the leaders of this movement.

Sanitary Legislation in 1888.—Legislative projects in Parliament, during the year under review, connected with sanitary and health matters, were tolerably numerous, though but few new Acts were added to the statute books. The most important of those carried through to a successful issue was, of course, Mr. Ritchie's "Local Government Bill," which contains extensive clauses referring to sanitation. This measure will but very little affect large urban communities; for the smaller town and rural districts, however, it contains considerable potentialities for sanitary progress and reform. Yet another Bill for dealing with the better housing of the working classes was introduced, and also one to make the notification of infectious disease compulsory, throughout the country at large; but neither of these proposed measures arrived at the haven of accomplished work. One small Bill, of some importance to a limited section of the community, was passed, which renders permanent the provisions of the "Habitual Drunkards' Act," which was originally passed to be in force for a limited term of years only.

Work of the Sanitary Inspectors.—In the early part of the year, the succession of cases of Small-pox that were met with in the Borough, necessarily engaged a considerable portion of the time of the Inspectors, as each case involved a vigilant watch and inquiry as to any possible infection arising therefrom. The greatly diminished amount of Scarlet Fever in the town has, however, permitted some satisfactory progress to be made in the work of house-to-house inspection. This work is now being done in a thorough and complete manner. The house connection to drains and sewers are tested with the "smoke test," wherever necessary, and a vast number of sanitary defects are thus brought to light, many of them of a dangerous character.

No branch of sanitary work is of more importance, or followed by more direct benefit to the community, than this careful and systematic house inspection. The appended report from Mr. Allen, the chief Inspector, gives details of the sanitary work carried on during the year, and it is gratifying to find that a very large per centage of it is done by the owners of property without even the necessity of issuing "formal orders" by the Committee, and it is rare indeed that legal compulsion has to be resorted to, for remedying or abating existing nuisances. To those who have any acquaintance with the details of the practical work of sanitation, the bare figures and statistics given in the Inspector's report will suffice to shew that a constant supervision is being given to those numberless small matters, insignificant, many of them, when viewed separately, but taken collectively, as affecting the whole of a large population, are of no mean importance, and a constant attention to or neglect of which makes all the difference to real sanitary progress, and to the well-being, comfort, and health of the community at large.

Chief Inspector's Report upon the work of the Sanitary Department during 1888.

To the Medical Officer of Health.

Sir,—Herewith I beg to hand you my report upon the work carried out in the Sanitary Department during the year 1888, together with statements setting forth the details thereof.

I am, Sir, yours faithfully,
FRANK H. ALLEN,
Chief Inspector.

During the past year over 8000 houses have been examined and reported upon, in the course of house-to-house inspection, as against 6000 last year. The "smoke test" has been employed in the examination of 301 houses and premises, as against 514, and the number of defects found by its aid was 192. The following Table shews the localities of sewer gas escapes discovered in the course of inspection with the smoke test:—

Localities of Sewer Gas Escapes.

	No. of Cases.
Into Sitting-rooms and Dining-rooms	13
,, Kitchens and Sculleries	12
,, Basement Kitchens and Cellars	19
,, Lobbies and other parts of Houses	6
,, Internal Water-closets	7

Into Work-rooms and Offices	5
,, External Water-closets	34
,, Yards from around badly-set gullies, defective drains, &c.	50
,, Yards from external soil pipes	4
From rain-water downright pipe heads and joints	34
,, rain-water pipes connected direct with heads, near to and below the level of bed-room windows	8
Total	192

In seven of the cases of sewer gas escapes into houses, the defects were in connection with internal, unventilated soil pipes.

Following up the instructions of the Sanitary Committee, in reference to cellar drainage, a large number of cellar drains have either been cut off and abolished, or properly disconnected by ventilated syphons, and the proved cases of admission of sewer air into cellars by means of "direct" drainage, go to support the action of the Committee.

The courts have been regularly inspected, the worst of them at weekly intervals, and extensive paving and drainage orders have been executed. I am glad to be able to report that in numerous instances the ash-pits have been abolished, and portable bins provided by the owners of cottage property, the contents of these being removed once every week. Both landlord and tenants appear to be satisfied, and pleased with the results obtained from the use of bins in place of the old ash-pit; and their adoption is largely on the increase, the number now in use within the Borough being upwards of 3400. The dust-bin is a cure for the nuisances often arising from the old-ash-pit, and as the number of these receptacles is increasing daily, I would impress upon the Corporation the advisability of adopting at once a Borough pattern bin, to insure uniformity of size, suitability of construction, and good materials.

51 common privies have been abolished during the year, and many of these that remain, about 50 in number, are either a long distance from dwellings and workshops, in connection with manure pits in stable yards, or unused.

In connection with Infectious Diseases inspection, the following defects were found, either in the houses referred to in the certificates, or in the houses, closets, &c., in the same yards:—

Defective and foul ash-pits		37
Defective and dilapidated closets		70
Defective and choked drains		28
Defective, unventilated soil pipes		7
Defective urinals and bath and lavatory wastes		17
Foul brick and defective shafts to sinks		40
Sink wastes connected direct		8
Foul and defective rain-water cisterns		14
Filthy and dilapidated houses		126
Filthy closets and passages		40
Defective paving		65
Defective, untrapped, and badly-set gullies, to sink and yard drainage		48
Polluted well		1
Defective privy		1
Cellar drains directly to sewers		22
Escape of sewer gas into		
External water closets	7	
Cellars	10	
Living rooms, kitchens, and sculleries	10	
Yards, from defective drains, badly-set gullies, rain-water pipes connected direct, &c.	39	
	—	65

The inspection of slaughter-houses has been regularly carried out, and the provision of the Bye Laws in reference to lime-washing duly enforced. It is necessary to visit some of these places many times in each week, to ensure that their cleanliness is maintained; though, from the nature of the work carried on, more or less nuisance is almost unavoidable.

The cow sheds and dairies have been cleansed and limewashed, in accordance with the regulations, and they have been regularly visited by the Inspector. It is satisfactory to note that cow keeping within the Borough is still on the wane, only 59 of the cowkeepers registered now carrying on the trade; the number of cows being 361, with standings for 432, as against 382 cows and 643 standings last year.

The common lodging houses have received 617 day and 299 night visits, and the usual cleansing and limewashing have been done by the tenants upon verbal notices. The whole of the rooms have been remeasured, in two cases rooms deemed to be unfit for sleeping purposes have not been registered, and in one case the new tickets for the whole house have been withheld, pending the completion of sanitary alterations. In the course of house-to-house inspection, Inspector Bishop found a cellar in Bedford-street used as a bed-room, the house throughout, from the number of beds, having the appearance of a common lodging house. The bed was removed under notice within 24 hours, and the occupier of the house, upon receipt of a notice from the Town Clerk, made application for the registration of the premises as a common lodging house.

There have been thirteen prosecutions during the year, viz.:—Two for neglecting to carry out sanitary orders, one in reference to two carcases of diseased meat, and ten under the Sale of Food and Drugs Act.

The accompanying Statements will show in detail the work done by the Inspectors, and in conclusion I am glad to be able to say that the Sanitary Inspectors and the Meat Inspector have carried out their district and special duties with punctuality, energy, and despatch.

STATEMENT A.

Shewing the work done by the Sanitary Inspectors during the Year 1888.

		No. of Visits.
House to House Inspections		8024
Special Inspections and Investigations of Complaints		14,895
Re-inspections, to ascertain the progress of Sanitary and Informal Orders		7037
Visits in connection with Contagious Diseases		3038
Visits to Common Lodging Houses	Day 617 Night 299	916
Do. Bakehouses		507
Do. Canal Boats (Inspector Pearce)		117
Total No. of Inspections		34,534

	Nos.
Samples purchased by Inspector Braley, for Analysis under the Sale of Food and Drugs Act	158
Samples of Well Water taken	31
Observations for the purposes of Smoke Prevention	1214
Stacks reported for Smoke Nuisance	16
Cases sent to the Fever Hospital	98
Houses disinfected by the Sanitary Staff	131
Schools do. do.	0
Houses disinfected by the occupiers thereof	5
Notices sent to Schools and to the Public Libraries	350
Swine reported to the Medical Officer of Health	214
Filthy Houses do. do.	25
Prosecutions under the Public Health Act	3
Do. do. Food and Drugs Act	10
Houses to which the Smoke Test was applied	301
Do. tested and found defective	156

STATEMENT B.

Shewing work carried out under Formal and Informal Orders, during the Year 1888.

	No. of Orders.
To abolish Manure-pits and Ash-pits	352
,, repair do. do.	130
,, erect new do. do.	7
,, provide Ash-tubs or bins	561
To abolish Privies	51
,, ,, Privy Cesspools or Vaults	45
,, ,, Pail Closets	13
To erect new Water Closets	39
,, ,, ,, Pail Closets	39
,, repair, alter, or rebuild Closets	271
,, fix Closet Hoppers and Syphons	56
,, fix Flushing Apparatus and lay on Water Supply	70
,, repair do. and do.	61
,, provide Pails	21
To alter and ventilate Soil Pipes	127
,, fix ventilated Syphons	186
,, lay new Drains	72
,, relay or repair defective Drains	444
,, clear choked Drains	211
To abolish Cisterns and fill up and cover Wells	21
,, cleanse or repair Cisterns	105
To fix lead or iron Sink Wastes	410
,, fix Traps or Gully Gratings	488
,, reset Gullies or provide new Gratings	272
To erect, alter, screen, or repair Urinals	131
,, repair, re-hang, or provide new doors for Closets and Dwellings	41
,, repair, renew, and make good spouting	174
,, cleanse and limewash Closets and Passages	395
To pave Yards and Passages, or repair Paving	493
,, provide new, or relay and repair Floors	392
To repair Roofs	136
,, repair dilapidated Houses	12
To cleanse and limewash Houses	1442
,, cut off, take up, and stop old drains	74
To ventilate Workshops and Dwellings	2
,, remove Manure and other offensive matter	7
To remove Animals kept in such a condition as to be a nuisance	136
To close Wells and lay in Waterworks supply of water	5
To alter Chimneys and Miscellaneous	516
Total	8025

N.B.—More than 70 per cent of the above were Informal Orders.

STATEMENT C.

Shewing the number of Offensive Trades carried on, and Registered and Licensed Premises within the Borough, requiring the attention of the Inspectors.

DESCRIPTION OF TRADE.	No.
Slaughter Houses	70
Tripe Houses	25
Common Lodging Houses	27
Bakehouses	172
Cow Sheds	73
Milk Shops and Dairies	206
Tallow Melters	4
Ammoniacal Liquor Works	1
Chemical Works	2
Carpet Beating Works	1
Fellmonger	1
Leather Dresser	1
Bone Boiler	1
Soap Boilers	3
Knacker's Yard	1
Total	588

STATEMENT D.

Shewing the number of Visits made by the Inspector of Meat, and the quantity of Meat, &c., condemned during the year.

No. of visits to	Slaughter Houses	7,894
Do.	Cowsheds, Dairies, and Milkshops	6,388
Do.	Cattle Market	189
		14,471

In addition to this, the stalls in the Fish and Poultry Market have been visited several times every day, and the stalls in the General Markets on Wednesdays and Saturdays, the Inspector being on duty throughout the whole of Saturday.

MEAT, &C., CONDEMNED AND DESTROYED.

	Tons.	Cwts.	Qrs.	Lbs.
Meat	5	7	1	13
Fish	17	9	2	0
Fruit	1	14	0	0
Cheese	0	0	2	24

Poultry and Game	139 head.
Hares and Rabbits	458 ,,
Oysters	12 score.

Part II.

FEVER HOSPITAL.

REPORT FOR THE YEAR 1888.

Cases in Hospital in 1888.

Ten years have elapsed since so small a number of patients were under treatment in the wards of the Fever Hospital. The total number received was 154, as against 191 in the preceding twelve months, and this again had been the lowest number since the year 1878. These diminished numbers are due to the decreased prevalence of Scarlet Fever within the Borough.

The small number of cases admitted in 1878 (see Table E) was not because Scarlet Fever did not exist amongst the community at that time, but is due to the fact that its whereabouts was practically unknown, and but little pressure was brought to bear upon parents to allow their children to be removed to Hospital.

In 1879, however, "Compulsory Notification" came into force, and endeavours were made to utilize the Hospital wherever isolation could not properly be carried out at home.

Little opposition in removing patients to Hospital.

At the present time, so well does the Hospital stand in repute among the people at large, that comparatively little trouble is met with in getting cases removed thereto, and frequently the warm thanks of the parents and friends are received for the care and treatment bestowed upon their little ones there.

Scarlet Fever. Sixty-five per cent. of all the Scarlet Fever cases were last year taken out of the Borough into the Hospital (86 out of 132 known to have occurred). In addition, eight cases were received from the County, making a total admitted during the year of 94.

Small Pox. A considerable increase in the number of patients admitted with Small-pox is seen (Table B) to have occurred. In all twenty-three cases have been under treatment, one being from the County and not belonging to the Borough. Thirty-nine persons were also placed under observation in the quarantine wards, three of whom developed Small-pox while thus isolated.

The following Tables furnish statistical details of the work of the Hospital during the year. In Table E is shewn the numbers admitted since the year 1878, inclusive.

STATISTICS OF FEVER HOSPITAL.

Details of Cases under treatment during the Year 1888.

TABLE A.

General Summary.

Remaining in Hospital Dec. 31st, 1887	10
Admitted during the year 1888	154
Total (in Hospital and quarantine)	164
Discharged cured	148
Died	4
Remaining in Hospital Dec. 31st, 1888	12
	164

TABLE B.

Shewing number of each Disease under treatment, with the Death Rate thereof.

	In Hospital Dec. 31, 1887	Admitted.	Discharged Recovered.	Died.	Mortality per cent.	Remaining in Hospital Dec. 31, 1888
Scarlet Fever	6	94	84	4	4.0	12
Small-pox ..	4	23	27	0	0	0
Erysipelas ..	0	1	1	0	0	0
	10	118	112	4	4·0	12

N.B.—Thirty-nine persons were also admitted into quarantine, three of whom developed Small-pox: these latter are included in the above figures.

TABLE C.

Shewing Monthly Admissions of Scarlet Fever and Small-pox.

	Scarlet Fever.	Small-pox.
January	9	6
February	12	4
March	10	6
April	4	0
May	0	1
June	2	2
July	7	1
August	7	1
September	16	2
October	13	0
November	5	0
December	9	0
	—	—
Totals	94	23

TABLE D.

Ages of Scarlet Fever Patients.

Age.	No. Admitted.	Deaths.
Under 1 year	0	0
From 1 to 2 years ..	4	0
,, 2 to 3 ,, ..	6	3
,, 3 to 4 ,, ..	10	1
,, 4 to 5 ,, ..	11	0
,, 5 to 6 ,, ..	8	0
,, 6 to 7 ,, ..	12	0
,, 7 to 8 ,, ..	8	0
,, 8 to 9 ,, ..	4	0
,, 9 to 10 ,, ..	7	0
Over 10 years	24	0
	—	—
Totals	94	4

TABLE E.

Cases of Infectious Disease admitted into the Fever Hospital from 1878 to 1888, inclusive.

Year.	Small-pox.	Scarlet Fever.	Erysipelas.	Typhoid.	Measles.	Unclassified.	Quarantine	Total.
1878	8	51	18	0	0	1		78
1879	0	247	22	0	0	0		269
1880	1	230	47	5	0	0		283
1881	6	388	46	0	0	0		440
1882	30	460	44	0	0	0		534
1883	12	383	12	0	0	0		407
1884	6	354	5	0	0	0		365
1885	8	900	3	0	0	3	10	924
1886	1	439	0	0	10	5	2	457
1887	10	151	1	13	0	2	14	189
1888	23	94	1	0	0	0	39	154

NOTE.—Prior to 1885 the number of persons in quarantine is not known. In the year 1887 two persons in quarantine developed Small-pox, and in 1888 three: these appear in the Small-pox column as well as in the quarantine column of the above Table.

No deaths occurred during the year amongst the patients suffering from Small-pox, though one or two of the cases were of a severe character. Full details of each of these having been already given, it is unnecessary to refer again to them (see page 12). It is satisfactory to be able to state that up to the date of writing no case of Small-pox has been met with in the Borough since September last. The wards are, however, kept ready for occupation, and can be prepared to receive patients at an hour's notice.

Speaking generally, the Scarlet Fever cases have been of a mild type: four deaths occurred, one of these a child two years old, died within 48 hours of admission, and was at that time suffering from Nephritis and Dropsy, having been ill three weeks. Another of the fatal cases, aged 2½ years, was complicated with Pneumonia, and the two others, aged 2½ and 3 years respectively, were both complicated with glandular abscesses.

Complications, &c., in Scarlet Fever.

Amongst the cases that recovered, seven suffered from Scarlatinal Nephritis, but all made a good recovery; three from Otorrhœa, or inflammation of the internal ear, and one from both Albuminuria and Otorrhœa. The latter patient was under treatment nearly three months, and when discharged the Otorrhœa had not entirely ceased. In four patients glandular abscesses of the neck were met with, and in one the primary symptoms were followed by subacute Arthritis. All these made a good recovery. In the remainder of the patients, the attacks were comparatively of a mild character, and not followed by any serious complication or sequelæ.

TABLE F.

Expenditure.

		£	s.	d.	£	s.	d.
Drugs		11	1	9			
Instruments and Appliances		0	0	0			
Wines and Spirits		14	6	6			
Dispensary Sundries		1	5	0			
Disinfectants		12	19	6	39	12	9
HOUSE EXPENSES :—							
	Butchers' Meat, Fish & Poultry	165	11	0			
	Bread	22	17	7			
	Butter	24	7	3			
	Milk	69	19	11			
*	Ale and Porter	28	16	0			
	Mineral Waters	3	18	6			
	Groceries and other Provisions	79	17	0			
	Gas	41	1	4			
	Coal	115	1	0	551	9	7
Salaries and Wages		336	8	4			
Advertising, Printing, & Stationery		4	8	6			
Linen, Bedding, &c.		77	6	4			
Fixtures and Furniture		23	6	10			
Domestic Implements and Utensils		26	10	9			
Alterations and Repairs		260	3	11			
Painting and Whitewashing		7	15	6			
Taxes and Insurance		7	0	8			
Garden Seeds, Plants, &c.		7	6	3			
Water Rate		1	16	0			
Rental of Telephone		19	0	0			
Horse hire, &c.		5	10	6			
Sundries		12	5	3	788	18	10
					£1380	1	2

Repayments and Receipts.

	£	s.	d.	£	s.	d.
Amounts charged for Maintenance of County Patients	54	3	10			
Ditto for use of Disinfecting Chamber	4	4	0	£58	7	10

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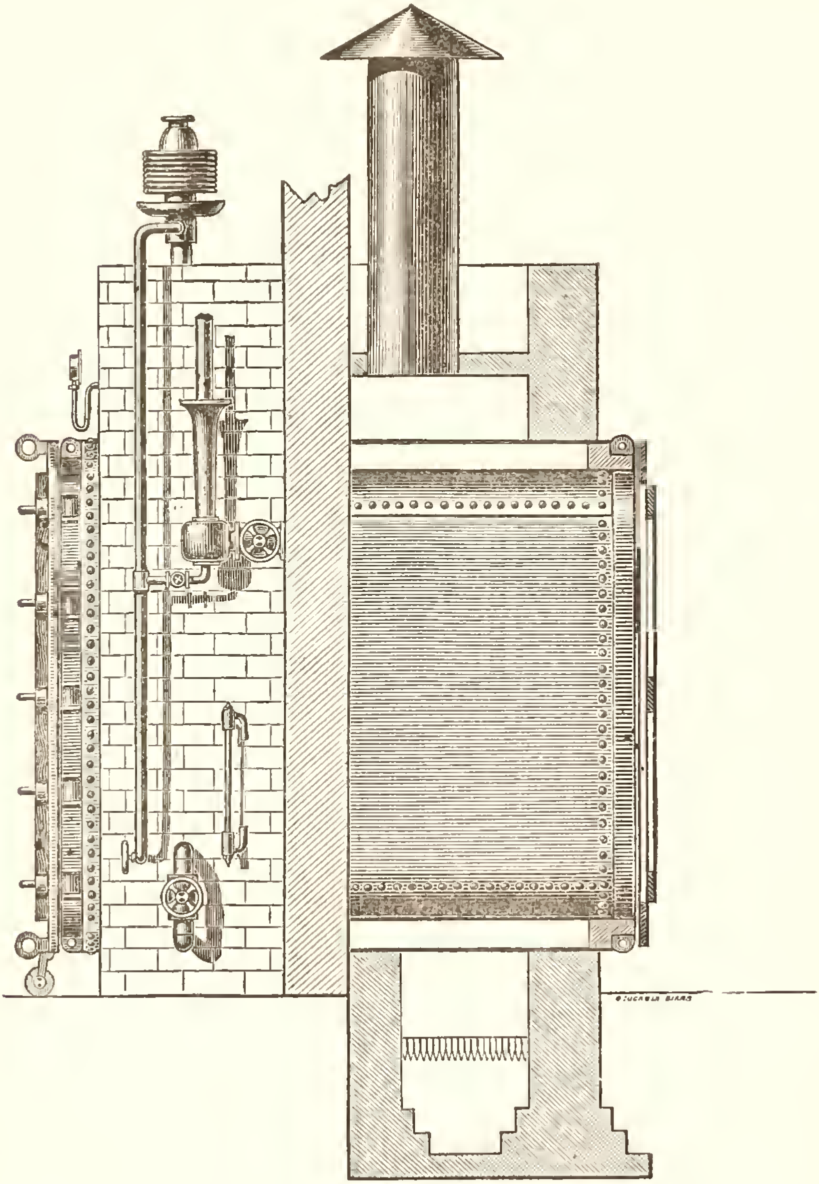
* These amounts for House Expenses are for actual quantities and expenses *incurred* during the year: other figures in this Table shew actual payments made.—H. T.

The cost of the working of the Hospital for the year is seen from Table F to have been £1380 1s. 2d., from which has to be deducted £58 7s. 10d., repayments made for County Patients, &c., giving a nett expenditure of £1321 13s. 4d.

164 persons have been admitted, which gives as the total cost per patient £8 1s. 2d.

The average stay of each patient in Hospital was 35·7 days, and the average daily number of occupied beds has been sixteen. Calculated upon these figures, the weekly cost per occupied bed was £1 11s. 9d.

One item of expenditure, amounting to £150, for a new steam disinfecting apparatus, is included in the foregoing statement, but is not, strictly speaking, part of the ordinary expenditure of the Hospital, and would be more rightly placed to charges on capital account. Further, it has been provided not merely for the Hospital, but also to meet the requirements of the whole Borough. The former machine, a hot air apparatus, known as "Ransome's," was uncertain in its action, and tedious and expensive in its working. The present one, made by the same Nottingham firm as the other, Messrs. Goddard and Massey, has now been in constant use for upwards of six months, and so far has given every satisfaction. Super-heated steam is used in it, and it fulfils every requirement of an efficient disinfecting apparatus. The required temperature is maintained with certainty and constancy in all parts of the chamber. Its action is independent of the workman in charge, and it is speedy and economical in its working. Delicate fabrics are not injured, and the clothing, &c., when removed, is free from damp and moisture. The accompanying engraving gives a side view of the machine, partly uncased.



Its chief novelty, compared with other machines, is the provision of a very powerful "exhaust," whereby a current of hot air can be drawn through without the steam, thus efficiently drying all materials inside, or, if required, the hot air alone can be used as the disinfecting agent for articles, where steam is not admissible.

The following presents have been made to the Hospital during the year, and, in addition, an almost constant supply of flowers has been provided by the friends of patients, or by patients themselves after their discharge, as a small token of their appreciation of the benefits derived from the institution. Mention should also be made of the constant attention and interest shewn in the Hospital by the Rev. Canon Vaughan, who is a frequent visitor to the patients in the wards, and whose pecuniary aid is not unfrequently forthcoming to assist needy patients when leaving.

COL. BAILIE, Kibworth, a box of books.
W. EVANS, Esq., New Parks, books.
G. FRANKLIN, Esq., F.R.C.S., a rocking horse, &c.
ST. LUKE'S CHURCH, flowers and fruit.
EMMANUEL CHURCH, flowers, fruit, &c.
ST. LEONARD'S CHURCH, flowers.
COUNCILLOR WILFORD, fruit, &c.
COUNCILLOR SPURWAY, confectionery.
The REV. CANON VAUGHAN, books, papers, periodicals, &c.
ALDERMAN WINDLEY, newspapers, weekly supply.

SUMMARY OF VITAL STATISTICS, &c., for 1888.

Area of Borough.—3030 acres, divided into seven wards, of which the sixth, or West St. Mary's, including considerably more than one-third of the whole Borough, in the greater part is yet unoccupied by buildings; whilst in the first, the third, and the fourth wards, the land is almost entirely built over.

Population.—146,790, by the Registrar-General's estimate in the middle of the year.

Density.—48 persons per acre; but in parts more than double this.

Inhabited Houses.—28,417 (estimated number).

Rateable Value.—£507,923, at Michaelmas.

Marriages.—1138. The marriage rate for the year, 15·5 per 1000 of the population.

Births.—4787; the birth rate for the year being 32·6 per 1000.

Vaccinations.—314, of which 234 were performed by private practitioners, and 80 by public vaccinators.

Deaths.—2640. Death rate for the year, 17·9 per 1000.

Increase of Population.—3637; but the natural increase or excess of births over deaths was only 2147.

Part III.

VITAL STATISTICS.

Area Population and Density.—No alteration in the size or boundaries of the Borough has yet occurred, the acreage remaining at about 3030 acres. At the middle of 1888, the population, according to the estimate formed by the Registrar-General, was 146,790, and this number will be taken as the basis upon which the various calculations in the statistical part of this Report are framed. But, as was explained last year, the longer the time that has elapsed since the census taking, the more likelihood is there of inaccuracy in this estimate. We in Leicester are, in all probability, somewhat over-estimated, and this is admitted in a foot note to the weekly returns published by the Registrar-General. Judging, however, from the very large number of new houses that have been erected within the Borough during the two past years, the population must be still rapidly on the increase; though the almost continuous decline in the birth rate during recent years shews that the rate of natural increase to the population has diminished, compared with the former decade. The expediency of establishing an intermediate, or quinquennial census, was strongly urged upon the Chancellor of the Exchequer and the President of the Local Government Board, by a deputation that waited upon these gentlemen a few months ago.

Registrar's Estimates.

Need for intermediat Census.

The desirability of this proposal was readily admitted, but the question of cost appears to be the chief obstacle in the way of carrying it out, although it is adopted by more than one European country, in New Zealand, Queensland, parts of Canada and other of our own Colonies, and in many of the States of America. If it be found that the Imperial Government cannot, or will not, undertake an enumeration of the population at a shorter interval than ten years, it becomes a question well worth consideration, whether the local authorities of at least our larger centres of population might not legitimately undertake a quinquennial census of their communities, much less elaborate than that of the Government, but sufficing to give us at least an approximately accurate number of the population, sufficient to prevent any great error in connection with vital statistics, &c.

The rapid increase of cottage property in many of the outskirts of the town, where more adequate air-space is enforced, and the slow removal of some of the older dwellings by street improvements and new buildings, should in some little degree tend to diminish the density of the population, in the older parts of the Borough.

Density of Population.

Based on the above estimate of population, the density per acre is about 48 persons; but those who are familiar with Leicester will not need to be told that this average density of 48 souls to an acre is merely nominal, as many acres of land within the Borough are as yet unbuilt upon, whilst in "old Leicester" the population in parts exceeds 100 persons to the acre.

Inhabited Houses and Rateable Value.—The estimated number of houses inhabited in 1888 was 28,417, being an increase of 859 upon the preceding year. (See Table I.)

The rateable value of the Borough at Michaelmas was **£507,923.**

TABLE I.

Showing the Population, Inhabited Houses, Marriages, Births, and Deaths, for the Year 1888, and ten years preceding.

The Year.	Estimated Population.	No. of Inhabited Houses.	Marriages.	Registered Births.	Corrected number of Deaths.			Deaths in Public Institutions.
					Total all ages.	Under one year.	Under five years.	
1888.	**146,790**	***28,417**	**1138**	**4787**	**2640**	**980**	**1335**	**320**
1878	119,845	24,438	1107	4779	2500	981	1360	
1879	117,610	24,616	1141	4687	2651	878	1366	
1880	120,325	24,794	1179	4860	2960	1070	1727	
1881	123,120	24,974	1153	4711	2654	965	1371	
1882	126,275	25,511	1201	4855	2528	942	1297	
1883	129,483	25,818	1207	4823	2484	913	1271	
1884	132,773	25,937	1152	4851	2937	1133	1615	
1885	136,147	26,794	1114	4682	2641	907	1315	
1886	139,606	*26,934	1222	4858	2738	1052	1383	265
1887	143,153	*27,558	1169	4689	2722	1011	1407	306
Average of ten years, 1878-1887	128,833	25,737	1164	4779	2681	985	1411	

NOTE a,— Population at census 1881 was 122,376.
,, b.—Area of present Borough in acres 3030.

NOTE c.—Number of inhabited houses at census 24,974.
,, d.—Average number of persons per house at census 4.9.

* The number of inhabited houses in these years is estimated from data in Surveyor's office. In previous years the figures have been supplied by the Overseers.

Decrease in Marriages.

Marriages.—There has again been a diminution in the number of marriages: only 1138 were registered, as against 1169 in the year 1887. This gives a marriage-rate, that is, the number of persons married per 1000 of the population living in the town, of 15·5. Many other large communities shew a decrease in recent years of the marriage-rate.

Leicester has certainly not, during the year now under notice, suffered from any marked depression in trade, and we may therefore attribute this decline in some measure to more caution being displayed by the working classes in rushing into very early marriages.

Decrease in Births.

Births.—Again, as was shewn to be the case in 1887, the births do not shew that corresponding increase, compared with the estimated increase in the population, which one would naturally expect to find. There is not in Leicester, at the present time, any of that commercial depression, or scarcity of employment, which is usually found to exist alongside a diminished birth rate, and most probably an over-estimated population causes us to shew a lower birth-rate than we actually have. But that there is a decrease in the birth-rate of the town, during the past few years, is at once seen on reference to Tables I. and II.

Since 1880, the number of births has been practically stationary, with a tendency to a slight decrease. During the year under review, 4787 births were registered, or an increase of only 98 on the preceding year; whilst the birth-rate per 1000 of the population was only 32·6, the lowest recorded in the past ten years. (See Table II.) Of these births, 2426 were males and 2361 females; 1252 were registered in the first quarter of the year, 1252 in the second, 1104 in the third, and 1179 in the last quarter. There were 181 illegitimate births.

In the twenty-eight large towns of the kingdom, the birth-rate last year was 31·2 per 1000, which also is a decline upon the preceding years. In 1876, the birth-rate of these towns was 38·1 per 1000, but since that date, as in the case of our own Borough, there has been a steady decline.

Vaccinations.—From information obtained from the Clerk to the Guardians, it appears that there were only 314 successful vaccinations performed in Leicester last year, of which 234 were by private practitioners and 80 only by the public vaccinators. These figures shew a decline of 160 compared with 1887, when 286 private vaccinations were registered, and 188 by public vaccinators. As this subject was referred to at some length in last year's Report, further allusion to it need not now be made, except to point out that at the present time the vaccination laws are completely in abeyance, and, as a consequence, there are now being added yearly to the population (after allowing for infantile deaths) between three and four thousand unvaccinated children.

Decline in Vaccination.

Deaths and Annual Death-rate.—The death-rate for 1888 has been the lowest on record for many years.

During the fifty-two weeks now under review, the number of inhabitants lost to the town by death was 2640, being only 17·9 per 1000 of the population. The absolute number, notwithstanding the increased population of the Borough, is smaller than any year since 1883, whilst the death-rate is lower than any year during the past decade, and is 2·7 per 1000 below the average mortality for the same period. (See Tables I and II.)

Low Death rate.

In this total, there are included thirty deaths which took place outside the Borough, at the Asylum, and four at the Fever Hospital; whilst the deaths of those persons brought from the outlying districts, and dying within the Infirmary and the County Asylum, are excluded therefrom.

TABLE II.

Shewing the Annual Birth and Death Rates, Death Rates of Children, and proportion of Deaths in Public Institutions, in a Thousand Deaths, for the year 1888, and ten years preceding.

In Year.	Birth-rate per 1000 of the Population.	Death-rate per 1000 of the Population.	Deaths of Children under 1 year per 1000 of Registered Births.	Deaths of Children under 1 year per 1000 of Total Deaths.	Deaths of Children under 5 years per 1000 of Total Deaths.	Deaths in Public Institutions per 1000 of Total Deaths.
1888.	**32·61.**	**17·98**	**204·7**	**371·2**	**505·7**	**121·2**
1878	39·87	20·72	205·2	392·4	548·0	
1879	37·31	21·10	187·3	331·1	513·0	
1880	40·39	24·70	220·1	360·3	581·6	
1881	38·26	21·56	204·8	363·2	517·7	
1882	38·44	20·05	194·4	372·6	513·1	
1883	37·24	19·18	190·7	367·5	511·6	
1884	36·53	22·12	233·5	381·6	543·9	
1885	34·38	19·39	193·5	343·4	513·8	
1886	34·80	19.61	216·5	384·2	505·1	96·7
1887	32·75	19·01	215·8	371·7	516·9	112·4
Average of ten years, 1878-87.	36·99	20·74	206·1	366·8	526·4	

Mortality at different Seasons.—A much smaller mortality than usual was experienced during the *third* quarter of the year, as is seen from the subjoined figures, due chiefly to the diminished Diarrhœa prevalence.

	1888.	1887.	1886.	1885.
First Quarter	743	712	658	750
Second ,, ...	615	570	588	602
Third ,, ...	647	782	829	746
Fourth ,, ...	635	658	663	543
	2640	2722	2738	2641

The numbers in the first quarter were swollen by the excessive mortality from Whooping Cough.

Leicester compared with other Towns.—Throughout the country at large, the year 1888 was marked by a diminished mortality. In all England and Wales, the death-rate was only 17·8 per 1000.

Lessened Death-rate throughout the Country.

In the twenty-eight great towns of the kingdom, it was 19·2 per 1000. During the eight years that have elapsed since the taking of the last census, the average annual rate has been 21·1 per 1000; whilst in the preceding ten years it was 24·0 per 1000.

In Table III. is given the death-rates of each of these large towns, as returned by the Registrar-General. It is there seen that Brighton comes first with 16·1, closely followed by Derby, Hull, and Bristol. Leicester stands seventh on the health roll of these towns; whilst Manchester, with a mortality of no less than 26·1 per 1000, stands at the bottom.

TABLE III.

Death-rate of the large English Towns during each of the past 10 years.

	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888
28 large Towns				22·3	21·6	21·6	20·5	20·9	20·8	19·4
London	22.7	21·6	21·2	21·4	20·4	20·4	19·7	19·9	19·6	18·5
Brighton	19·1	19·8	19·0	21·7	19·2	17·9	17·1	17·1	16·9	16·1
Portsmouth	17·6	19·8	19·7	21·5	18·6	19·4	19·7	23·8	19·5	18·8
Norwich	21·7	24·3	19·5	20·6	19·6	21·2	20·3	23·3	20·4	20·2
Plymouth	22·9	35·1	19·9	21·2	20·9	21·1	22·3	23·5	22·7	22·3
Bristol	21·9	21·0	19·6	19·2	17·9	18·4	19·7	19·3	20·4	16·9
Wolverhampton	23·0	21·3	21·2	22·4	21·3	23·4	20·2	22·2	21·7	20·7
Birmingham	22·1	20.7	20·0	20·9	21·3	21·4	19.3	19·9	19·7	17.8
Leicester	23·2	25·0	21·8	20·0	19·2	22·1	19·4	19·6	19·0	17·9
Nottingham	21.6	23·8	22·4	23·6	21·2	22·9	19·9	20·4	18·7	17·3
Liverpool	26·9	27·1	26·7	26·5	26·7	25·2	23·8	23·8	23.7	20·3
Manchester	28·3	26·9	25·5	26·7	27·6	26·4	26·5	26·3	28·7	26·1
Salford	26·7	28·0	22·6	23‘2	22·4	22·3	21·1	22·1	22·2	21·1
Oldham	22·8	24·7	22·8	24·6	22·0	24·5	22·0	22·8	23·8	20·3
Bradford	22.9	22·9	19·7	21·2	18·4	20·1	17·7	19 2	19·9	17·1
Leeds	23·5	22·0	21·6	23·2	23·3	24·2	19·9	21·9	21·1	20·6
Sheffield	22·9	22·9	21·1	21·7	22·9	22·4	20·7	19·8	21·6	20 5
Hull	22·0	23·4	23·8	23·2	22·8	21·1	17·2	18·8	19·3	16·4
Sunderland	22·3	25·0	20·9	26·5	24·5	23·0	23·8	19·5	19·7	18·1
Newcastle	24·4	22·8	21·8	23·1	25·4	23·1	26·1	22·2	25·3	20·6
Derby							18·1	18·2	17·1	16·3
Birkenhead							19·5	19·1	21·0	17·8
Bolton							20·8	23·1	21·3	21·6
Blackburn							21·8	25·5	25·5	23·9
Preston							27·1	28·9	27·9	23·9
Huddersfield ..							20·1	19·6	23·0	18·5
Halifax							19·7	22·7	21·0	19·4
Cardiff							25·7	22·6	21·9	20·5

True Comparative Death-rates.—In comparing one town with another, unless care be taken, a fallacy is easily fallen into as to their relative healthiness or otherwise. In order to fairly compare the mortality of different towns the one with the other, it is necessary to take into consideration the varying conditions existing therein as to the age and sex distribution of their respective populations.

Corrected Comparative Death-rates.

The factors necessary to do this were obtained by the Registrar-General, at the last census: in the following Table (Table IV.) this correction has been made, and the *true comparative death-rates* inserted in the second column. It is found, year after year, that the result of this correction is to alter very little the relative position of these towns from that which they occupy when their recorded death-rate only is considered. Thus, to take our own Borough as an example, as is seen in this Table, with its actual recorded death-rate it stood seventh on the list, whilst its position, with its mortality corrected for age and sex distribution, is sixth, being bracketed equal with Sunderland. Brighton still heads the list, and Manchester is at the bottom.

The great difference that exists in the mortality of our various large communities is more strikingly shewn by a glance at the third column of Table IV., where 1000 is taken as the standard figure for the whole of the country. As explained in last year's report, it shews that for every 1000 persons who died last year, in all England and Wales, only 940 died in Brighton, in Leicester 1057, and in Manchester no less than 1634 were carried to their graves.

Mortality at different Ages.—Following the plan adopted the last few years, a Table is submitted shewing the mortality at different age periods, grouping them in accordance with the plan adopted in the new English Life Tables (Table V.) It is satisfactory to note that Leicester has improved its position with respect to its loss of life in the first group, that is, in children under five years of age; it had last year a death-rate among these of only 67·9 per 1000, against 73·1 in the previous year. It is still, however, much in excess of the standard Life Tables; but at every other age period it stands remarkably well, especially from 40 years and upwards.

TABLE IV.

Recorded and corrected Death-rates, in 28 large English Towns, during 1888.

Towns in order of their corrected Death-rate.	Recorded Death rates per 1000 per annum.	Corrected Death rates per 1000 per annum.	Comparative Mortality Figure.
England and Wales	17·79	17·79	1000
28 Towns	19·40	20·46	1150
Brighton	16·12	16·60	933
Derby	16·27	16·92	951
Hull	16·43	16·95	953
Bristol	16·90	17·49	983
Nottingham	17·28	18·32	1030
Leicester	17·98	18·82	1057
Sunderland	18.07	18·82	1057
Bradford	17·14	18·93	1064
Birmingham	17·82	19.00	1068
Birkenhead	17·80	19·04	1070
Norwich	20·17	19·29	1084
Portsmouth	18·76	19·32	1086
London	18·47	19·60	1102
Huddersfield	18·52	20·34	1143
Halifax	19·36	21·03	1182
Wolverhampton	20·68	21·32	1198
Newcastle	20·58	21·78	1224
Leeds	20·60	22·02	1238
Sheffield	20·54	22·09	1242
Plymouth	22·34	22·12	1243
Cardiff	20·46	22·21	1248
Liverpool	20·34	22·32	1255
Oldham	20·33	22·56	1268
Salford	21·15	23·02	1294
Bolton	21·61	23·68	1331
Preston	23.91	25·97	1460
Blackburn	23·91	26·06	1465
Manchester	26·09	29·07	1634

TABLE V.

Estimated Population in Leicester at Five Groups of Ages, with actual number of Deaths in 1888, and the Death Rate of each group compared with English Standard Life Tables.

	Estimated Population, 1888.	Deaths in 1888.	Mortality per 1000.	Deaths per 1000 of the whole population of the country, living at various ages, according to the new English Life Tables.
Under 1 year	4700	980	208·5	
1 to 5 years	14,973	355	23·7	
Total under 5 years	19,673	1335	67·9	61·0
5 to 20	47,081	131	2·7	4·8
20 to 40..........	44,913	263	5·8	8·5
40 to 60..... ...	25,301	350	13·8	18·3
Over 60 years	9822	561	57·1	71·9
All Ages	146,790	2640	17·9	19·5

Infantile Mortality.—The infantile death-rate of the Borough, *i.e.*, the proportion of deaths under one year of age to the total number of births registered, is a little lower; but from Table VI. it will be observed that in almost all the other towns a slight reduction has also occurred.

TABLE VI.

Infantile Mortality in the Large English Towns.

Deaths under one year per 1000 Births.

	1888.	1887.	1886.
Derby	143	142	150
Portsmouth	134	143	174
Brighton	149	149	160
Bristol	123	149	149
Sunderland	133	151	151
Halifax	154	153	171
Birkenhead	151	156	162
London	146	158	159
Norwich	163	158	202
Hull	139	165	164
Nottingham	151	170	180
Bolton	172	171	186
Leeds	173	172	181
Cardiff	141	172	168
Newcastle-on-Tyne	137	174	155
Wolverhampton	167	176	175
Birmingham	154	176	175
Sheffield	178	177	168
Bradford	153	178	167
Huddersfield	157	181	167
Liverpool	168	186	188
Oldham	151	187	174
Manchester	176	191	183
Salford	184	195	198
Plymouth	163	196	154
Blackburn	190	201	209
Preston	188	214	233
Leicester	**204**	**215**	**216**
Average of 27 Provincial Towns	161	176	177

Leicester, with 204 deaths to 1000 births, still stands at the bottom of the list, and loses a larger proportion of its infants than any other English town, notwithstanding its low general death-rate. The number of deaths of infants under one year of age, during 1888, was 980, as against 1011 in the year 1887. In Table VII. is set forth the chief diseases which are so fatal here to infantile life. It is some satisfaction to see that, in addition to the diminished number of deaths from Diarrhœa, there are also less from Tuberculosis and Lung Diseases. The deaths from Atrophy and Debility remain stationary, whilst those from Convulsions and Premature Birth shew an increase. These infantile deaths are always in excess in the third quarter of the year, but during the past year the excess in Leicester has not been nearly so great as in many preceding years.

Diseases causing Infantile Deaths.

TABLE VII.

Rates of Mortality of Children under one year of age, from chief Infantile Diseases, per 1000 Births.

	1886.		1887.		1888.	
	Total Deaths.	Rate per 1000 Births.	Total Deaths.	Rate per 1000 Births.	Total Deaths.	Rate per 1000 Births.
From all causes....	1052	216·5	1011	215·8	980	204·7
Atrophy & Debility	252	51·8	212	45·2	210	43·8
Diarrhœa	229	47·1	209	44·5	119	24·8
Convulsions	127	26·1	128	27·2	179	37·3
Lung Diseases....	296	60·9	299	63·7	150	31·3
Premature Birth ..	95	19·5	99	21·1	117	24·4
Tubercular Disease	59	12·1	61	13·0	37	7·7
Measles	11	2·3	23	4·9	23	4·8
Scarlet Fever......	5	1·0	0	0	0	0
Whooping Cough..	18	3·7	26	5·5	39	8·1

Illegitimacy and Infantile Mortality.—The illegitimate births have already been given as 181. The deaths of illegitimate children were 113, of whom 92 were under a year old, thus giving a death-rate per 1000 of these births of 508, as against 204, the year's rate for the whole of the infantile deaths.

TABLE VIII.

Deaths in each Quarter of the Year under one and over one year of age.

			1888.		
	1st Qr.	2nd Qr.	3rd Qr.	4th Qr.	Total.
Under 1 year	224	189	327	240	980
Over 1 year	519	426	320	395	1660
Totals ..	743	615	647	635	2640
			1887.		
Under 1 year	192	185	417	218	1012
Over 1 year	520	385	365	440	1710
Totals ..	712	570	782	658	2722
			1886.		
Under 1 year	185	181	467	219	1052
Over 1 year	473	407	362	444	1686
Totals ..	658	588	829	663	2738
			1885.		
Under 1 year	227	211	357	112	907
Over 1 year	523	391	389	431	1734
Totals ..	750	602	746	543	2641

Insurance and Infantile Mortality.—Public attention has been lately called to the abuse of infantile insurance, especially in our large manufacturing towns. It has been asserted, and considerable evidence has been forthcoming to show, that sums of money, largely in excess of what the law intended to be permitted, have been paid to parents and others, on the death of infants. A select committee of the House of Commons is now sitting, to investigate the whole subject of the insurance of young children. The original object of insuring children in burial clubs, &c., with a view to provide the expenses incident to burial, should the child die, is permissible and even laudable, as indicating thrift on the part of the poor; but if this insurance comes to be looked upon as an easy mode of obtaining a little ready money, and results in negligence, if not criminal carelessness, in the rearing of infants, it is time for the law to step in, and take such steps as may be expedient to prevent such abuse. The infantile mortality of most of our large towns is far higher than it ought to or might be, and if "the death of a child is an unnatural event," any attempt to diminish these deaths is to be welcomed. Exact evidence as to the actual number of children insured, and the amounts paid on their deaths, is difficult to obtain, but the following figures relating to our own town are at least suggestive.

Abuse of the insurance of young children's lives.

During the *three months* ending December, 1888, of the children under five years of age, that died in Leicester, 151 were insured in one or more societies or burial clubs. Of these, 86 were under one year of age, and 65 from one to five years old. The total deaths under five years during that period were 335, so that more than 45 per cent. were insured. The total deaths under one year were 240, of which 36 per cent. were insured. These figures are too small, and the period they cover too short, to arrive at a definite conclusion; but they would indicate that the proportion of *infantile deaths*, on which insurances are affected, is not excessive in Leicester. Arrangements have been made for the figures, for the whole of the current year, to

Infantile insurance in Leicester.

be at the disposal of your Officer of Health, and the results thereof will be submitted in next year's Report.

District Mortality.—During the last few years it has been customary to insert in this Report a Table, shewing the death-rate in the several wards into which the Borough is divided, based upon the estimated population in each ward. Seeing, however, that the population has increased in some of these districts in a far greater proportion than in others, estimates formed upon the figures of the last census must needs, at the present time, be misleading, and it will perhaps be wiser to postpone any calculations as to the varying mortality, in the different wards, until we can again state accurately the population of each.

Mortality in the different Wards.

Of course we know that the proportionate mortality of some wards is double that of others; thus, in last year's Report, it was estimated that in East St. Mary's the death-rate was only about 11 per 1000, whilst in All Saints' and East St. Margaret's it was 23 per 1000 of the population. The difference in social conditions, density of aggregation, &c., largely explains this variation.

Table IX. shews the actual number of deaths which have occurred in each ward, at four groups of ages.

Classified Causes of Death.—Taking the classification now in common use, we find that the 2640 deaths recorded last year are divisable into the following main groups:—The first, or Zymotic (which includes Diarrhœa), contains 388; the second and third are insignificant in number; the third group, or Constitutional Diseases, is accountable for 332 deaths; the fourth, or Local Diseases, 1281; the fifth group, or Developmental Diseases, contains 541; whilst the deaths from various forms of violence, together with those deaths from uncertain or ill-defined causes, were 90 in number. In Table X.

Groups of Diseases.

these are compared with the numbers of the preceding year. Each of these groups will now be briefly reviewed separately. In the Appendix the various sub-divisions of these larger groups, with the deaths at different age periods, will be found fully set out in the Mortality Tables.

TABLE IX.

Deaths at different Ages and Death-rates, in various Wards of the Borough, during 1888.

	All Ages.	Under 1 Year.	1 Year to 5.	Over 5 Years.	Estimated Population.	Ward Mortality per 1000 living.
1.—St. Martin's Ward	9	0	1	8	?	
2.—N. Margaret's ,,	322	143	56	123	?	
3.—M. Margaret's ,,	624	248	122	254	?	
4.—E. Margaret's ,,	771	219	87	465	?	
5.—E. Mary's ,,	108	22	11	75	?	
6.—W. Mary's ,,	525	210	45	270	?	
7.—All Saints' ,,	281	137	33	111	?	
Totals	2640	979	355	1206		

The accompanying diagram shews in graphic form the relative mortality from some of the more important causes of death, during the past year.

TABLE X.

Total Deaths, Death-rate, and per centage of Deaths of the eight principal groups of disease.

	1887.			1888.		
	Total Deaths.	Rate per 1000 living.	Per centage of Total Deaths.	Total Deaths.	Rate per 1000 living.	Per centage of Total Deaths.
Zymotic Disease	462	3·2	16·9	388	2·6	14·7
Parasitic ,,	..	..	..	6	..	..
Dietic ,,	3	..	..	2	..	..
Constitutional ..	399	2·7	14·6	332	2·2	12·5
Local	1213	8·4	44·5	1281	8·7	48·5
Developmental	529	3·6	19·4	541	3·7	20·5
Violence	81	0·5	2·9	77	0·5	2·9
Ill-defined	35	0·2	1·2	13	0·09	0·5

CLASS I.—ZYMOTIC DISEASE.

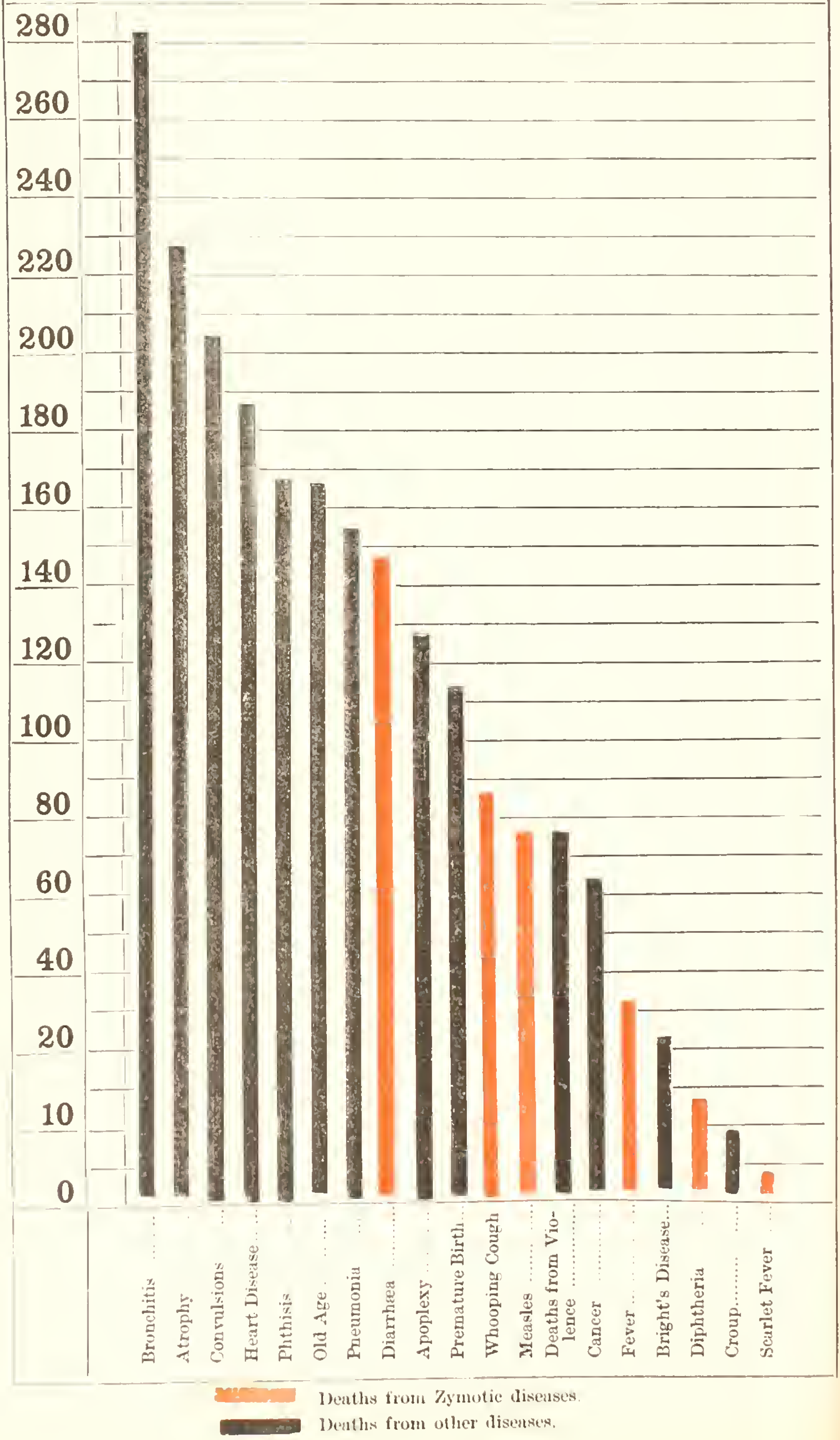
Zymotic Death-rate.—Including the whole of those diseases now grouped in the zymotic class, 388 deaths were recorded. Of those, 148 were from diarrhœal disease. The deaths from the common infectious ailments, known as the miasmatic diseases, which comprise Small-pox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, and "Fever," were only

TABLE XI.

Shewing total number of Deaths from the principal Zymotics and the Death-rate per 1000 in 1888, and during the previous ten years.

	Deaths in 1888.	Average No. per year during ten years ending 1887.	Death-rate per 1000 per annum in 1888.	Average annual death-rate per 1000 during the ten years ending 1887.
Small-pox	0	1·1	0	0·009
Measles	77	60·8	0·52	0·47
Scarlet Fever	4	80·7	0·03	0·64
Diphtheria . ..	13	10·3	0·09	0·08
Whooping Cough	86	60·1	0·58	0·46
Fever	32	25·9	0·22	0·20
Diarrhœa	148	237·7	1·0	1·76
	360	476·6	2·45	3·69

Diagram shewing relative mortality from some of the principal causes of death during the year 1888.



212, giving a death-rate per 1000 of the population of 1·4. The zymotic death-rate, including the *whole of the zymotic* diseases, was 2·6 (see Tables X. and XI.), a gratifying decrease on the preceding year.

Decrease in mortality from Zymotic Disease.

Much of this decrease was accounted for by the smaller number of deaths from Diarrhœa. Throughout the country at large the zymotic death-rate was lower. In the twenty-eight large towns of the kingdom, it reached only 2·4 per 1000. The lowest rates were—in Hull 1·1, Halifax 1·2, Bristol and Sunderland 1·3, and Brighton 1·4. The highest recorded were—in Sheffield 3·6, and Blackburn 4·1 per 1000.

Distribution of Zymotic Disease.—The distribution of these zymotic deaths, in the various districts of the Borough, is given in Table XII., where the number of deaths occurring in each ward is set forth. It has been pointed out, in former years, that the fifth, or East St. Mary's Ward, is, in proportion

TABLE XII.

Deaths in each of the Wards of the Borough, from the seven chief Zymotic Diseases, during 1888.

Ward.	Whooping Cough.	Small pox.	Measles	Scarlet Fever	Diphtheria	Fever	Diarrhœa.	Total.
1. St. Martin's	1	0	0	0	0	0	0	1
2. N. Margaret's ..	17	0	6	1	0	3	28	55
3. M. ,, ..	23	0	37	0	4	8	43	116
4. E. ,, ..	25	0	9	1	1	6	25	67
5. E. Mary's	1	0	0	1	1	1	2	6
6. W. ,, ...	11	0	19	1	7	12	29	78
7. All Saints'	8	0	6	0	0	2	21	37

to its population, the most free from zymotic disease. This is markedly the case again this year, only *six deaths* from the common infectious diseases having occurred there.

Measles, Whooping Cough, and Diarrhœa are the three diseases that swell the numbers in Middle St. Margaret's, East St. Margaret's, and West. St. Mary's.

Amount of Illness from Infectious Disease.—It is gratifying to be able to say that the past year has brought less sickness from these zymotic diseases than the previous one, which in its turn was the lowest on record since notification came into force in Leicester. The number of persons known to have been ill from diseases which are notified was 749; in 1887 it was 898. Table XIII. gives these in detail, and also their distribution in each of the four quarters of the year. Compared with 1887, it will be seen that there has been a decrease of 140 in the Scarlet Fever cases, 14 in Diphtheria, and 53 in Erysipelas; but there was an increase of 2 in Puerperal Fever, 44 in Typhoid Fever, and 12 in Small-pox. The actual number of patients who have suffered from Measles and Whooping Cough is not known, but judging from the number of deaths, both these diseases have been very prevalent: the latter shews an increase of 31 *in the deaths*, or more than 50 per cent. in excess of the preceding year.

ess amount of Sickness from Infectious Diseases.

Looking at Table XIII., it is seen that in the first and second quarters of the year Typhoid Fever was far more prevalent than in former years at this period, whilst in the third and fourth quarters it had very considerably fallen. Two-thirds of the cases of Small-pox were also met with in the first quarter of the year. Scarlet Fever was at its lowest ebb during the second quarter, averaging only one case per week.

In Table XIII. A is given the number of cases notified in the Borough during each of the years since notification came into operation.

TABLE XIII.

Shewing number of persons suffering from notified Diseases during each of the years 1888, 1887, and 1886.

1888.	Scarlet Fever.	Typhoid Fever.	Diphtheria.	Erysipelas	Puerperal Fever.	Small-pox.
First Quarter	37	95	14	73	3	14
Second ,, ...	14	74	21	59	1	3
Third ,, ...	41	52	11	45	3	4
Fourth ,, ...	40	45	21	78	1	0
Total in 1888	132	266	67	255	8	21
1887.						
First Quarter	108	20	23	71	0	0
Second ,, ...	64	19	14	58	1	0
Third ,, ...	35	102	10	67	0	0
Fourth ,, ...	65	81	34	112	5	9
Total in 1887	272	222	81	308	6	9
1886.						
First Quarter	253	14	5	71	1	0
Second ,, ...	145	26	11	53	3	1
Third ,, ...	219	45	9	63	3	0
Fourth ,, ...	200	56	26	71	5	0
Total in 1886.	817	141	51	258	12	1

TABLE XIII. A.

Reported Cases of Infectious Disease in each of the years 1879 to 1888 inclusive.

	Scarlet Fever.	Typhoid.	Erysipelas.	Diphtheria.	Small-pox.	Puerperal Fever.
*1879	496	56	125	24	0	
1880	802	245	442	87	0	6
1881	1065	179	566	63	5	15
1882	763	110	455	38	29	14
1883	797	85	317	26	12	12
1884	728	55	239	184	3	0
1885	1816	216	294	55	8	8
1886	817	141	258	51	1	12
1887	272	222	308	81	9	6
1888	132	266	255	67	21	8

The numbers in 1883, 1882, 1881, and 1880, are *certificates* only, and may not include quite all the *cases*.

*N.B.—In this year the cases are only reckoned from September 13th to the end of 1879, this being the first day the act came into effect.

Small-pox.—Once more Leicester has a clean bill of health, so far as any *death* from Small-pox is concerned. The details of the 21 cases which have occurred have already been given in Part I. Fortunately, all recovered, though one or two will bear the effects of the attack throughout their lives. In the twenty-eight large towns of the kingdom, 604 deaths were recorded, as compared with 332 in 1887. Of these 408 were reported from Sheffield, 52 in Preston, 26 in Bristol, and 22 in Manchester. There were only 9 deaths in the whole of London. Like ourselves, Brighton, Portsmouth, Norwich, Plymouth, Wolverhampton, Birmingham, Birkenhead, and Newcastle, had no death from Small-pox during last year.

Measles.—The number of deaths from Measles was 77, a decrease of 10 on the year preceding, but 17 in excess of the average annual mortality of the past ten years. (See Tables XI. and XIV.) The smallest number of deaths in any year, during the last decade, was in 1881, when only 7 deaths were registered, whilst in 1880 it caused 166 deaths. It is highly probable that at least 1000 cases of Measles must have occurred within the Borough last year, more than half of which were in the fourth quarter of the year. During the first six months this disease prevailed only to a slight extent, but increased rapidly as the autumn advanced.

Number of children ill with Measles not known.

The death-rate from Measles, in the whole of the large towns, was equal to 0·47 per 1000 of the population, considerably below the average of the last ten years, which has been 0·63 per 1000. The towns with the highest mortality were Blackburn and Cardiff, with a death-rate of 0·98 and 1·01 per 1000 respectively; those with the lowest were Hull, Sunderland, and Brighton, where it only reached 0·2 and 0·3 per 1000. In Leicester the death-rate was 0·5 per 1000 of the population. (See Table XI.)

Scarlet Fever.—The marked decrease from Scarlet Fever has continued. In 1887, the number of persons who suffered from this were 272: last year only 132 were ill from it, and the bulk of these cases were of a mild character. Only four deaths occurred, the smallest number for any one year of which we have record: this was equal to a rate of 0·03 per 1000 of the population. (See Tables XI. and XIV.) The exact localities of these deaths is shewn on the Map in the Appendix.

Diminution of Scarlet Fever.

TABLE XIV.

Shewing the number of Deaths from the principal Zymotic Diseases in the Ten Years, 1878 to 1887, and in the Year 1888.

DISEASE.	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	Annual Average of Ten Years, 1878-1887.	Proportion of Deaths to 1000 Deaths, in Ten Years, 1878-87.	Total Deaths in 1888.	Proportion of Deaths to 1000 Deaths in 1888.
Small-pox	1	0	0	2	5	3	0	0	0	0	1·1	0·41	0	0
Measles	45	72	166	7	74	15	57	52	43	87	60·8	22·6	77	29·1
Scarlet Fever	12	105	119	184	72	91	63	113	44	5	80·7	30·1	4	1·5
Diphtheria	5	11	23	11	5	6	11	14	4	13	10·3	3·8	13	4·9
Whooping Cough	82	61	27	122	19	59	66	52	27	55	57·0	21·2	86	32·5
Fevers { Typhus	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Enteric	31	21	46	29	19	10	16	36	19	31	25·9	9·6	32	12·1
Simple continued	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diarrhœa	302	88	398	193	214	148	344	186	256	247	237·7	88·6	148	56·0
Totals	478	358	779	548	408	332	557	453	393	438	476	177	360	136

Scarlet Fever Mortality less throughout th country.

In most of the large English towns, Scarlet Fever shews a diminished prevalence during 1888. In the twenty-eight towns, including London, 2668 deaths were registered, equal to a death-rate of 0·29 per 1000 of their population; the annual average of the past ten years being 0.41.

In continuation of the figures given in former years, Table XV. shews the monthly distribution of Scarlatina deaths for the last ten years; whilst in Table XVI. the ages of all those who were known to have suffered from an attack are given.

TABLE XV.

Deaths from Scarlatina during each Lunar Month of the following Years.

Year.	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	XI.	XII.	XIII.	Total.
1879	0	1	4	1	4	2	1	7	13	20	15	19	20	107
1880	12	7	4	13	6	7	3	4	12	5	16	12	17	118
1881	12	6	9	6	7	11	18	18	31	24	19	19	12	192
1882	6	12	5	2	2	2	2	2	3	9	11	7	8	71
1883	4	2	3	3	8	7	6	3	5	5	12	15	18	91
1884	8	12	5	2	7	5	2	3	4	2	3	5	5	63
1885	2	10	5	6	3	9	4	14	9	15	10	10	16	113
1886	9	11	2	4	2	0	0	1	3	2	2	4	4	44
1887	2	0	1	2	0	0	0	0	0	0	0	0	0	5
1888	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**4**

Diphtheria tending to increase in large towns.

Diphtheria.—The deaths from Diphtheria have been 13 in number, the same as in the preceding year. The number of persons reported as suffering from it was 67, as against 81 in 1887. In many of the twenty-eight large towns Diphtheria has shewn a decided tendency to increase during the past few years: especially is this the case in London. The death-rate per 1000 last year, in these large populations, was 0·21 per 1000, as against 0·17, the average rate of the last ten years. In Leicester the death-rate last year was only 0·09 per 1000 of the population. (For localities of deaths, see Map in Appendix.)

TABLE XVI.

Shewing Mortality and ages of persons suffering from Scarlet Fever.

	1888.			1887.			1886.		
	No of Patients.	Deaths.	Death-rate per cent.	No. of Patients.	Deaths.	Death-rate per cent.	No. of Patients.	Deaths.	Death-rate per cent.
Under 1 year	3	0	0	10	0	0	35	5	14·3
1 to 2 years	5	0	0	16	1	6·2	58	6	10·3
2 to 3 ,, ...	7	3	42·8	33	0	0	49	9	18·3
3 to 4 ,, ...	19	1	5·2	37	2	5·4	98	5	5·1
4 to 5 ,, ...	16	0	0	40	1	2·5	90	5	5·5
5 to 6 ,, ...	14	0	0	33	1	3·0	86	6	6·9
6 to 7 ,, ...	18	0	0	16	0	0	75	2	2·6
7 to 8 ,, ...	7	0	0	13	0	0	92	3	3·2
8 to 9 ,, ...	9	0	0	9	0	0	32	2	6·2
9 to 10 ,, ...	6	0	0	9	0	0	41	0	0·0
Over 10 years	27	0	0	53	0	0	155	1	0·6
Ages not stated	1	0	0	3	0	0	6	0	0·0
Totals........	132	4	3.0	272	5	1.8	817	44	5·4

Whooping Cough.—The mortality from Whooping Cough was larger than in the year before: 86 deaths were caused by it, as against 55 in 1887, and is the largest number recorded since 1881. (See Table XIV). The death-rate per 1000 was 0·58. The mortality from this disease in the large towns was below the average, being 0·58 for last year, as against 0·63 the last decennial average. It was most fatal in Salford, where 222 deaths were caused by it, or a death-rate of 0·98 per 1000; whilst in Bristol the rate was only 0·16, and in Bradford 0·18 per 1000 per annum.

Mortality due very much to want of proper nursing, &c.

As has been said before, if proper nursing and precautions were taken by those having the care of young children, this disease ought to be much less fatal than it is at present. The number of children that have suffered from Whooping Cough within the Borough last year, estimated by the number of deaths, was probably considerably more than 1000. The deaths were distributed as follows through the year:—

1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.
49	24	8	5

At the time of writing the disease appears to be quiescent.

Prevailed chiefly in first part of year.

Fever.—Practically, the diseases included under the term "Fever" are all Typhoid. 266 persons have suffered from it, of whom 32 died. In the previous year 222 cases were met with, and 31 deaths occurred. The increase in this disease at the end of 1887, which was referred to in last year's Report, continued on into the early months of the year under review. The large proportion of last year's cases occurred in the first part of the year (see Table XIII.); whilst in the autumn months, when an increase is usually met with, we had comparatively little. Of the 32 deaths, 13 took place in the first quarter of the year and 10 in the second; whilst in the third quarter only 5 occurred, and 4 in the last quarter. (See also part 1, page 18.) (For localities of deaths, see Appendix.) The death-rate was 0·22 per 1000 of the population. The annual average number of deaths during the past ten years has been 25·9. (See Table XIV.) In the large towns of the kingdom, during 1888, the mortality was 0·20 per 1000, and ranged from 0·43 in Salford and 0·40 in Nottingham, to 0·10 in Bradford and Halifax.

The death-rate from this disease, in the urban communities of England, has decreased by more than 30 per cent. during the last decade.

Diarrhœa.—The main facts in connection with the seasonal prevalence of, and the special enquiries carried on during the year relating to Diarrhœa, have already been discussed. (See part 1, page 20.) It only remains to give here the statistics of the same. 148 deaths were caused by it, a considerable decrease on the annual average of the past ten years, which has been 237. In 1883 exactly the same number of deaths were recorded; in every other year since 1879 the numbers have been largely in excess of this. (See Table XIV.) Our death-rate last year from this disease was 1·0 per 1000 of the population, against 1·8, the average annual rate of the last decade.

Diarrhœa less prevalent throughout the country.

In the whole of the great towns of England, the death-rate during 1888, from Diarrhœa, was 0·6 per 1000, as against 0·94 per 1000, the annual average of the last ten years; so that Leicester shews a larger proportionate decrease than the rest of the country, but, unfortunately, it has still one of the highest diarrhœal death-rates of any English town. Preston, with 1·5, was the highest last year; Bolton, with 1·03 per 1000, comes next; and Leicester, with 1·0 per 1000, comes third. Halifax, Huddersfield, and Oldham, had the lowest mortality, with a rate of 0·18, 0·19, and 0·28 respectively.

In the map of the Borough, inserted with the Appendix, the exact locality of each death from Diarrhœa is marked with a X, and it will be seen that in the same districts of the town as heretofore it was most fatal.

Ages of those suffering from Diarrhœa.

As in former years, Diarrhœa medicine was distributed to the poor of these districts, and the following Table, in continuation of similar records in previous Reports, shews the ages of those patients to whom medicine was given, and again confirms the statement that infants and young children *form only a small proportion of those attacked*, although they furnish nearly the whole of the deaths.

Number and ages of Patients suffering from Diarrhœa, in the summer of 1888, to whom Medicine was supplied gratuitously.

Under 1 year	177	5 years to 6	87	10 years to 20	660
1 year to 2 ..	305	6 ,, 7	68	20 ,, 60	2033
2 years to 3 ..	304	7 ,, 8	69	Over 60 years	369
3 ,, 4 ..	195	8 ,, 9	74		
4 ,, 5 ..	116	9 ,, 10	84	Total all ages	4541

Erysipelas trivial in character.

Erysipelas.—The deaths registered as due to Erysipelas were 8 only in number, as against 10 in the preceding year, a sufficient proof that the bulk of the cases reported (255 in number) were of the mildest character. As a matter of fact, the large majority notified scarcely deserve the name of Erysipelas, and have no significance from a public health point of view.

The few remaining deaths belonging to this zymotic group were—1 from Dysentery, 11 from Syphilis, 4 from Pyæmia, and 2 from Puerperal Fever.

CLASSES II. and III.—PARASITIC and DIETIC DISEASES.

Only 8 deaths were registered as belonging to these two small groups of diseases, of which two were the direct result of excessive indulgence in alcohol. If all the deaths rightly to be attributed to the effects of this agent were so certified, a much larger total would figure in this group annually.

CLASS IV.—CONSTITUTIONAL DISEASES.

332 deaths were due to the diseases comprised in group IV., or 12·5 per cent. of the total deaths of the year. Of these, 167 were males and 165 females. The two most important diseases in this class are those known as the tubercular and the cancerous. Amongst the former 160 were due to pulmonary consumption, or phthisis, one of the scourges of our own and other civilized countries. It is some consolation to find that in Leicester there is a tendency to a diminution in this disease, as the deaths last year were 23 less than in its predecessor. Cancer is another disease which annually claims a large number of victims throughout the country at large, and, unfortunately, there has been a marked increase during recent years in the mortality caused by it. In Leicester, 65 deaths were certified as due to some form or other of cancerous disease, of which 21 were males and 45 females. In 1887, 80 deaths were recorded. With a view to obtaining more accurate information respecting these deaths, and the probable causes at work in producing the disease, a circular was lately sent out by your Officer of Health to all the members of the medical profession practising in the Borough, asking for more exact description as to the character of the cancer, and also the organ or part of the body affected.

Phthisis deaths.

Deaths from Cancer.

The various other sub-divisions of this group, and the number of deaths from each, will be found fully detailed in the Mortality Tables, in the Appendix. (See also Table XVII.)

CLASS V.—LOCAL DISEASES.

The group of Local Diseases always contains the largest proportion of the whole deaths. 1281 were included in it last year, and formed 48 per cent. of the whole. In this Class are included the diseases of the nervous system, the circulatory and respiratory organs, the deaths from which largely go to make

TABLE XVII.

Shewing the Deaths at all ages during 1888, from certain groups of Diseases, and proportion to 1000 of population, and to 1000 Deaths from all causes; also the number of Deaths of Infants under one year of age, from other groups of Diseases, and proportion to 1000 Births, &c.

DIVISION I. (All ages.)	Total Deaths.	Deaths per 1000 of Population at all ages.	Deaths per 1000 of Total Deaths at all ages.
1. Zymotic Diseases	388	2·6	147
2. Pulmonary Diseases.. .. .. (Excluding Phthisis) . ..	481	3·2	182
3. Principal Tubercular Diseases .. (Including Phthisis)	217	1·4	80
DIVISION II. (Infants under one year.)	**Total Deaths.**	**Deaths per 1000 of Births.**	**Deaths per 1000 of Total Deaths under 1 year.**
4. Wasting Diseases .. .. .. (Including Tabes Mesenterica)	226	47·2	230
5. Convulsive Diseases..	179	37·8	182

up the total. Two groups of nervous diseases figure prominently at the two extremes of life. Deaths from Apoplexy and Paralysis, both diseases of mature age, caused last year 126 deaths; whilst convulsions, which is essentially a disease of early life, caused no less than 203 deaths. In Table XVIII. we see how large is the mortality from convulsions, in those wards of the Borough where the poorer or less well-to-do classes reside.

(For further details of statistics, see Tables in Appendix.)

TABLE XVIII.

Distribution, in the different Wards, of Deaths from six important groups of disease, during 1888.

	Six chief Zymotic diseases.	Diarrhœa	Devel-opm'l.	Acute Resp'raty	Phthisis.	Convul-sions.
1. St. Martin's Ward	1	0	2	0	1	0
2. N. Margaret's ,,	27	28	65	65	14	32
3. M. ,, ,,	73	43	115	100	40	47
4. E. ,, ,,	42	25	180	130	65	44
5. E. Mary's ,,	4	2	20	23	10	4
6. W. ,, ,,	49	29	112	92	28	37
7. All Saints' ,,	16	21	47	53	10	39

N.B.—The mortality of the fourth, or East St. Margaret's Ward, is a little over-stated, as owing to the absence of the necessary information, the deaths in the workhouse, which is situate in this Ward, cannot be distributed to the districts from whence the patients came.

CLASS VI.—DEVELOPMENTAL DISEASES.

In this group are placed the deaths from those diseases which are concerned chiefly in the development of the body during infancy, and in the decay of the body as old age approaches. (See Mortality Tables in Appendix). They numbered last year 541, of which 117 were due to Premature Birth, 228 to Atrophy and Debility (the greater portion of these being under one year of age), and 168 were ascribed to old age and general decay, of which 68 were persons aged 80 years and upwards, 35 being men and 33 women. In Table XVIII. is given the distribution of these deaths from Developmental Disease, through the seven wards of the Borough.

CLASS VII.—DEATHS FROM VIOLENCE.

Only 77 deaths were caused in the Borough, as the direct result of some form of violence. There was no case of either murder or manslaughter returned. 23 were from fractures and contusions, 10 from burns or scalds, 1 from accidental poisoning, 11 from drowning, and 20 from suffocation. Of the latter, 17 were infants under a year old. 12 deaths were returned as suicidal, of which 9 were by hanging, 2 by poison, and 1 by cutting of the throat.

The deaths from violence were 2·9 per cent. of all deaths, exactly the same rate as in 1887, or 0·52 per 1000 of the population living. In the twenty-eight large towns of the country, the rate was 0·68 per 1000, being highest in Cardiff, with a rate of 1·08 per 1000, and lowest in Brighton, where it reached only 0·30 per 1000 per annum.

CLASS VIII.—ILL-DEFINED & UNSPECIFIED CAUSES.

It is satisfactory to find that only 13 deaths have to be excluded from the preceding seven classes, from vagueness or want of definition as to the cause thereof, and thus come to be placed in Class VIII.: amongst these are deaths from "Natural Causes," "Tumour," "Dropsy," &c.

Inquests.—The enquiries held by the Coroner, excluding those upon persons not belonging to Leicester, have been 306 in number. Amongst these are the whole of those in Class VII., *i.e.*, from violence. The remainder is made up of those cases where no medical man was in attendance at the time of death, or where, from some reason or other, he was unable to furnish the required certificate. The deaths upon which inquests were held reached 11·2 per cent. of all deaths. The average in the twenty-eight large towns of the kingdom was 6·7 per cent. The town that had the next highest per centage of inquests to Leicester was Birmingham, where 9 per cent. of the deaths were enquired into. The towns with the smallest proportion of inquests were Halifax, with 2·7 per cent. of all deaths; Blackburn, with 2·9; and Sheffield, with 3·3 per cent.

Proportion of inquests.

Uncertified Deaths.—Only 55 deaths were registered during 1888, in which the cause thereof was uncertified by either medical attendant or coroner. This is equal to 2 per cent. of all deaths, and is a considerably lower proportion than in the preceding year. While on the one hand the holding of unnecessary inquests is to be deprecated, yet it is very undesirable that any large number of deaths should occur and no proper certificate as to the cause be forthcoming. All these uncertified deaths were in very young or prematurely born children. The per centage of uncertified deaths in the large towns of England last year was 2·1, ranging from 5·6 in Hull and 5·5 in Sheffield to 1·0 per cent in London and Plymouth, 1·1 in Portsmouth and Norwich.

Proportion of uncertified deaths.

APPENDIX.

ANALYST'S REPORT.

LOCALITIES OF DEATHS FROM ZYMOTIC DISEASES.

MORTALITY TABLES.

MAP.

BOROUGH ANALYST'S LABORATORY,
TOWN HALL, LEICESTER,
March, 1889.

To the Sanitary Committee.

GENTLEMEN,

I have the pleasure of submitting to you my report as Public Analyst to the Borough, upon the various articles submitted to me for analysis during the year 1888. The number of samples, together with the adulterations, &c., are tabulated in Table I.

TABLE I.

Articles of Food, &c., analyzed under the provisions of the "Sale of Food and Drugs Act" during the year 1888.

Commodity Analyzed.	Number of Samples obtained.	Number of Genuine Samples.	Number of Adulterations.	Remarks.
Milk	94	85	9	Four prosecutions: fines, 10/-, 30/-, 30/-, and 20/-, and costs were inflicted. In five cases the offenders were brought before the Sanitary Committee and cautioned.
Bread	12	12	0	
Beer........	6	6	0	
Butter	17	15	2	Two prosecutions: fined 20/- and 10/- with costs.
Coffee	6	5	1	One prosecution: fined 10/- and costs.
Vinegar	6	6	0	
Lard	13	10	3	Three prosecutions, of which one was withdrawn. One was fined 20/- and costs, and one £10.
Spirits	6	4	2	Two offenders brought before the Sanitary Committee and cautioned.
Ice Cream ..	2	2	0	
Total ..	162	145	17	

Of the total number of samples of the various commodities received by me, 158 were obtained by your Inspector, under the provisions of the "Sale of Food and Drugs Act," and 4 were from private sources. 94 of these samples were milks, of which 9, or 9·5 per cent., shewed evidence of having been tampered with. Prosecutions were ordered in 4 of these, followed in each case by conviction and fine; in the remainder the offenders were brought before the Committee and cautioned. The fines inflicted in the above cases were, however, so small as scarcely to deter the dishonest milk seller from continuing his malpractices. A very slight calculation will suffice to shew that a small daily sophistication of a very moderate quantity of milk soon suffices to recoup such small fines as 10/- to 30/-.

The usual adulterations practised are the abstraction of cream or the addition of water, and, considering how important an article of food milk is, in the dietary of young children and sick persons, the man who wilfully reduces the nutritive value of the milk he sells is a dangerous rogue, whose delinquencies deserve severe punishment. From Table II. it would appear that the extra vigilance of the last three years is having a good effect. It is significant to note how a successful prosecution before the magistrates at once improves the milk supply of the town, and the average quality immediately shews a marked improvement, which it is quite impossible to account for by any sudden change in the health or condition of the cows yielding the supply.

During the past year the "Margarine Act" has been in operation, but, as shewn in Table I., this has not sufficed to abolish all fraud in the butter trade, and two prosecutions were instituted against offenders, and small fines inflicted.

In one case coffee was sold, which proved to be a mixture of chicory and coffee, and a fine of 10/- and costs was imposed.

Two publicans had reduced the strength of their spirits, by the addition of water, just below the legal standard permitted by law: in each case the offender was summoned to the Sanitary Committee, and cautioned.

Perhaps the most important prosecutions under the "Food and Drugs Act," during the past year, were those for selling adulterated lard. In the worst case a fine of £10 was inflicted. It was certified by me that the said sample was not pure lard, but was a mixture of some vegetable oil and animal fat, not lard. To controvert this three eminent analytical chemists were brought from the north of England, by the firm who supplied the lard to the retailer. Under these circumstances, the magistrates forwarded part of the sample to Somerset House, where it was analyzed by the Government referee, with the result of exactly confirming my own report thereon.

For some years it has been known that enormous quantities of adulterated lard have been imported into this country from America, but it was not until recently that satisfactory methods of analysis, for the detection of this adulteration, were at our disposal. By a coincidence, the same day on which the above prosecution took place in Leicester, similar prosecutions were taking place in Liverpool, followed there also by conviction. Since then numerous other like prosecutions have been instituted in various parts of the country; so that one may hope that this artificial stuff, if sold at all in England, shall, like the butter substitutes now so largely used, be sold to the consumer for what it really is, and not as pure lard.

In many of these commercial frauds, where large trade interests are involved, and often large sums of money invested therein, it has of late years become a case of diamond cut diamond. Whilst on the one side the Public Analyst uses all the means which the science of chemistry places at his disposal, for the detection of these sophistications, on the other hand, chemical science is utilized just as freely to puzzle and baffle his skill.

There is one satisfactory feature of modern adulteration, compared with what existed a quarter of a century ago, *i.e.*, that although many adulterations do undoubtedly still go on, the majority of them are not of a deleterious character, or such as to be very prejudicial to health; so that the unwary purchaser does not, as a rule, suffer in his health so much as in his pocket.

TABLE II.

Number of Samples Analyzed, and proportion of Adulterated Articles in 1888, and in the Seven previous years.

Year.	Number of Samples Analyzed	Number of Samples Adulterated.	Per centage of Samples Adulterated.	Number of Prosecutions.	Per Centage of Adulterated Samples in the following articles.			
					Milk.	Butter.	Spirits.	Groceries
1888	**162**	**17**	**10·4**	**10**	**9·5**	**11·7**	**50·0**	**16·0**
1887	146	16	11·0	10	10·8	13·3	75·0	6·6
1886	168	25	14·8	9	17·4	17·6	20·0	28·4
1885	87	0	0·0	0	0·0	0·0	0·0	0·0
1884	96	4	4·2	4	6·4	0·0	22·2	0·0
1883	138	10	7·2	4	8·9	0·0	22·2	17·6
1882	130	1	0·8	1	0·0	0·0	0·0	25·0
1881	131	7	5·3	6	12·0	0·0	0·0	10·0

WATER ANALYSIS.

Thirty-three samples of well water have been brought to me for examination, thirty-one by the Inspectors and two by private individuals. In five of these the analysis shewed them to be unsafe for drinking purposes: orders were issued for their closure, and the laying on of a pure supply to the houses concerned.

Slowly, and by degrees, the use of well-water in the town is becoming displaced by that from the Corporation mains.

In 1885, it was estimated that 469 wells were still in use, in various parts of the Borough; at the end of 1888 they had become reduced to 297.

The water supplied from the Water-works has been analyzed by me monthly. At the beginning of the year, there was an undesirable amount of albumenoid ammonia present; but after the partial cleansing of the Thornton Reservoir, and the re-filling of this by the spring rains, it regained its usual condition as to purity, &c. Like all waters obtained from a gathering ground where a considerable amount of vegetation exists, it is at times apt to contain a colouring matter derived therefrom, and which is more noticeable when seen in bulk.

I am, Gentlemen,

Your obedient servant,

HY. TOMKINS, B.Sc.,

Public Analyst.

Localities of Deaths from the principal Zymotic Diseases during the year ending 31st December, 1888. Arranged into Wards.

DIARRHŒA.

WARD I.

Nil.

WARD II.

	No. of Deaths.
Abbey Street ..	1
Alfred Place ..	1
Arnold Street ..	1
Brierley Street ..	1
Berkley Street ..	1
Charlotte Street ..	1
Church Gate (Lower)	2
Craven Street ..	1
Devonshire Street ..	1
Foundry Lane ..	1
Gas Street	1
Garden Street ..	1
Heanor Street .	1
Northgate Street ..	1
Nursling Street ..	1
Navigation Street ..	1
Old Mill Lane ..	2
Orchard Street ..	1
Preston Street ..	1
Royal Kent Street ..	1
Royal East Street ..	1
Sanvey Gate ..	2
Spitalhouse Street ..	1
Thames Street ..	1
Westbourne Street ..	1
Total	28

WARD III.

	No. of Deaths.
Argyle Street ..	2
Bedford Street ..	2
Brook Street ..	2
Belgrave Gate ..	1
Britannia Street ..	1
Birstall Street ..	2
Cranbourne Street ..	1
Carley Street ..	1
Curzon Street ..	
Crab Street	1
Denman Street ..	1
Eaton Street ..	1
Elm Street	1
Grosvenor Street ..	3
Granville Terrace ..	1
Lewin Street ..	1
Larch Street ..	1
Liverpool Street ..	1
Martin Street ..	1
Milton Street ..	1
Oak Street	1
Providence Place ..	1
Palmerston Street ..	2
Piccadilly	1
Rodney Street ..	2
Russell Square ..	2
Russell Street ..	1
Rayns Street ..	1
Simpson Street ..	1
St. James' Place ..	1
Syston Street ..	2
Wheat Street ..	1
Willow Bridge Street	1
Total	43

WARD IV.

	No. of Deaths.
Bardolph Street ..	1
Dryden Street ..	1
Framland Street ..	1
Gartree Street ..	2
Gresham Street ..	2
Halford Street ..	1
Hamilton Street ..	2
Laurel Road ..	1
Lewin Street ..	1
Oxendon Street ..	1
Queen Street ..	1
Sherrard Street ..	1
Short Street	1
St. Saviour's Road ..	1
Spinney Hill Road ..	1
Twycross Street ..	1
Union, The	3
Underhill Street ..	1
Upper Kent Street ..	1
Westbourne Street ..	1
Total	25

WARD V.

	No. of Deaths.
Wellington Street ..	1
Calais Hill	1
Total	2

WARD VI.

	No. of Deaths.
Asylum Street ..	1
Aylestone Street ..	1
Brown Street ..	2
Bonner's Lane ..	2
Catesby Street ..	2
Church Gate ..	1
Crown Street ..	1
Fosse Road	1
Gray Street	1
Gt. Holme Street ..	1
Henshaw Street ..	1
Hazel Street ..	1
Junior Street ..	1
Knighton Street ..	1
Marble Street ..	1
New Park Street ..	1
Noble Street ..	1
Norton Street ..	1
Outram Street ..	1
Oxford Street ..	2
Parliament Street ..	1
Ruding Street ..	1
Vauxhall Street ..	1
Victoria Street ..	1
West Holme Street	1
Total	29

DIARRHŒA (continued).

WARD VII.

	No. of Deaths
All Saints' Road ..	3
Blackfriars' Street ..	1
Bakehouse Lane ..	1
Cardinal Street ..	1
Causeway Lane ..	1
Friars Causeway ..	1
Frog Island	2
Harding Street ..	1
Highcross Street ..	3
Littleton Street ..	1
Northgate Street ..	2
Red Cross Street ..	1
Sanvey Gate ..	1
Swan Street	1
West Bond Street ..	1
Total	21

TOTALS.

	No. of Deaths
Ward I. ..	0
Ward II. ..	28
Ward III. ..	43
Ward IV. ..	25
Ward V. ..	2
Ward VI. ..	29
Ward VII. ..	21
Total	148

TYPHOID FEVER.

WARD I.

Nil.

WARD II.

Friday Street ..	1
Burley's Lane ..	1
King's Newton Street	1
Total	3

WARD III.

Benford Street ..	1
Belper Street ..	1
Brunswick Street (Upper)	1
Gresham Street ..	1
Syston Street ..	2
Thomas Street ..	1
Westbourne Street ..	1
Total	8

WARD IV.

Cedar Road ..	1
Conduit Street ..	1
Halford Street ..	1
Morledge Street ..	1
Porter Street ..	1
Union, The ..	1
	6

WARD V.

Dover Street ..	1
Total	1

WARD VI.

Braunstone Gate ..	1
Brown Street ..	1
Burgess Street ..	1
Coventry Street ..	1
Grange Lane ..	1
Kate Street ..	1
Magazine Square ..	1
Orton Street ..	1
Redcross Street ..	2
Ruding Street ..	1
Walnut Street ..	1
Total	12

WARD VII.

Church Gate ..	2
Total	2

TOTALS.

Ward I. ..	0
Ward II. ..	3
Ward III. ..	8
Ward IV. ..	6
Ward V. ..	1
Ward VI. ..	12
Ward VII. ..	2
Total	32

SCARLET FEVER.

WARD I.

Nil.

WARD II.

Watling Street ..	1
Total	1

WARD III.

Nil.

WARD IV.

Charnwood Street ..	1
Total	1

WARD V.

Duke Street ..	1
Total	1

WARD VI.

Goswell Street ..	1
Total	1

WARD VII.

Nil.

TOTALS.

Ward I. ..	0
Ward II. ..	1
Ward III. ..	0
Ward IV. ..	1
Ward V. ..	1
Ward VI. ..	1
Ward VII. ..	0
Total	4

MEASLES.

WARD I.

Nil.

WARD II.

	No. of Deaths.
Belgrave Gate ..	1
Devonshire Street ..	1
Mansfield Street ..	2
Navigation Street ..	1
Northgate Street ..	1
Total	6

WARD III.

	No. of Deaths.
Argyle Street ..	4
Alfred Terrace ..	1
Birstall Street ..	2
Brook Street ..	1
Brunswick Street ..	2
Britannia Street ..	3
Bread Street ..	1
Carley Street ..	1
Cranbourne Street ..	1
Curzon Street ..	1
Dorset Street ..	1
Elm Street ..	1
Gresham Street ..	3
Humberstone Gate ..	2
Junction Road ..	1
Lewin street ..	1
Liverpool Street ..	1
Milton Street ..	1
Providence Place ..	1
Rodney Street ..	2
Russell Street ..	1
Stanley Street ..	1
Syston Street ..	1
Twycross Street ..	1
Wheat Street ..	1
Willow Street ..	1
Total	37

WARD IV.

	No. of Deaths.
Bell Lane	1
Charles Street (Upper)	1
Frank Street ..	1
Free Lane	1
London Road ..	1
Midland Street ..	1
Morledge Street ..	1
Northampton Street	2
Total	9

WARD V.

Nil.

WARD VI.

	No. of Deaths.
Albert Street ..	1
Carlton Street ..	1
Friar Lane	1
Grange Lane ..	1
Gosling Street ..	2
Knighton Street ..	1
Latimer Street ..	1
Millstone Lane ..	1
New Bridge Street ..	2
Oxford Street ..	2
Outram Street ..	3
Regent Street ..	1
St. John Street ...	1
Winifred Street ..	1
Total	19

WARD VII.

	No. of Deaths.
Friars Causeway ..	2
Highcross Street ..	1
Jewry Wall Street ..	1
Sanvey Gate	1
Sycamore Lane ..	1
Total	6

TOTALS.

Ward I. ..	0
Ward II. ..	6
Ward III. ..	37
Ward IV. ..	9
Ward V. ..	0
Ward VI. ..	19
Ward VII. ..	6
Total	77

WHOOPING COUGH.

WARD I.

Pocklington's Walk	1
Total	1

WARD II.

Arnold Street ..	1
Bread Street ..	1
Crane Street ..	1
Friday Street ..	1
Grove Street ..	1
Harcourt Street ..	1
Mansfield Street ..	2
Navigation Street ..	1
New Road	1
Rathbone Place ..	1
Sanvey Gate ..	3
Simpson Street ..	1
Sandacre Street ..	1
Thames Street ..	1
Total	17

WARD III.

Bedford Street ..	2
Birstall Street ..	1
Belper Street ..	1
Brook Street ..	2
Barwell Street ..	1
Brunswick Street ..	1
Cranbourne Street ..	1
Dorset Street ..	1
Dryden Street ..	1
Denman Street ..	1
Eaton Street ..	1
Gresham Street ..	1
Lewin Street ..	3
Metcalf Street ..	1
Norton Street ..	2
Russell Street ..	1
Wood Street ..	1
Willow Street ..	1
Total	23

WARD IV.

Baker Street ..	1
Donnington Street ..	1
Fleet Street	1

WHOOPING COUGH (continued).

	No. of Deaths.
Frank Street	3
Glebe Street	1
Gartree Street	1
Nelson Street	1
Queen Street	1
St. Peter's Road	2
St. Saviour's Road	2
Union, The	8
Upper Charles Street	2
Worthington Street	1
Total	25

WARD V.

	No. of Deaths.
Wellington Street	1
Total	1

WARD VI.

	No. of Deaths.
Brown Street	1
Countess Street	1
Dun's Lane	1
Fairfax Street	1
Highcross Street	1
Jewry Wall Street	1
Jarrom Street	1
Latimer Street	1
Middle Street	1
Norfolk Street	1
Southgate Street	1
Total	11

WARD VII.

	No. of Deaths.
Friars Causeway	2
Frog Island	1
East Bond Street	2
Littleton Street	1
Sanvey Gate	1
White Street	1
Total	8

TOTALS.

Ward I.	1
Ward II.	17
Ward III.	23
Ward IV.	25
Ward V.	1
Ward VI.	11
Ward VII.	8
Total	86

DIPHTHERIA.

WARD I.

Nil.

WARD II.

Nil.

WARD III.

Birstall Street	1
Denman Street	1
St. James' Street	1
Upper Kent Street	1
Total	4

WARD IV.

Berners Street	1
Total	1

WARD V.

Bowling-green Street	1
Total	1

WARD VI.

Bakehouse Lane	1
Catesby Street	1
Dannett Street	1
Grange Lane	1
Hazel Street	1
Knighton Street	1
Outram Street	1
Total	7

WARD VII.

Nil.

TOTALS.

Ward I.	0
Ward II.	0
Ward III.	4
Ward IV.	1
Ward V.	1
Ward VI.	7
Ward VII.	0
Total	13

MORTALITY TABLES.

Deaths Registered in the Borough of Leicester during the fifty-two weeks ending Dec. 29, 1888.

NOTE.—The deaths of non-residents occurring in Public Institutions situated in the Borough are excluded, and the deaths of residents occurring in Public Institutions beyond the limits of the Borough are included.

	0 to 1		1 to 5		Under 5		5–20		20—40		40—60		60—80		80 and upwards.		Over 5		All Ages.		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Class I.																					
SPECIFIC FEBRILE OR ZYMOTIC DISEASES.																					
1.—Miasmatic Diseases.																					
Small-pox: Vaccinated	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Small-pox: Unvaccinated	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Small-pox: Not known	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Small-pox: Not stated	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Measles	13	10	24	25	37	35	4	1	..		..	..	..	..	..	..	4	1	41	36	77
Scarlet Fever (Scarlatina)	..	..	2	2	2	2	..	..	..	..	..	..	..	..	..	..	..	..	2	2	4
Diphtheria	..	..	5	2	5	2	3	..	..	1	2	..	..	..	..	..	5	1	10	3	13
Whooping Cough	19	20	25	21	44	41	1	..	..	..	..	..	..	..	..	..	1	..	45	41	86
Typhus Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric or Typhoid Fever	..	..	1	1	1	1	4	5	8	9	1	2	1	..	..	..	14	16	15	17	32
Simple Continued Fever	..	..	..	..	..	..	..	..		..	..	..	..	..	..	..	..	..		..	..
Other Miasmatic Diseases	..	2	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2
2.—Diarrhœal Diseases.																					
Dysentery	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1
Diarrhœa	63	56	11	12	74	68	..	1	..	2	..	..	2	..	1	..	3	3	77	71	148
Cholera	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3.—Malarial Diseases.																					
Ague	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Remittent Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4.—Zoogenous Diseases.																					
Cowpox and Effects of Vaccination	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hydrophobia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Glanders	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Splenic Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

5.—Venereal Diseases.																					
Syphilis	3	4	..	..	3	4	..	..	..	2	2	..	..	..	..	..	2	2	5	6	11
Gonorrhœa, Stricture of Uretha	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6.—Septic Diseases.																					
Erysipelas	2	1	..	..	2	1	..	..	1	1	1	1	1	..	..	..	3	2	5	3	8
Pyæmia, Septicæmia	1	..	..	..	1	..	..	..	..	2	..	.	1	..	..	..	1	2	2	2	4
Puerperal Fever	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	2	..	2	2
Class II.	102	93	68	63	170	156	12	8	9	18	6	3	5	..	1	..	33	29	203	185	388
PARASITIC DISEASES.																					
Thrush and other Vegetable Parasitic Diseases	1	3	1	..	2	3	..	..	..	..	..	..	..	.	..	..	..	..	2	3	5
Worms, Hydatids, and other Animal Parasitic Diseases	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	1	..	1
Class III.	1	3	1	..	2	3	..	..	1	..	..	..	..	..	..	..	1	..	3	3	6
DIETIC DISEASES.																					
Want of Breast Milk, Starvation	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Purpura and Scurvy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Alcoholism { *a* Del. Tremens	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Alcoholism { *b* Intemperance	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	2	.	2
Class IV.	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	2	..	2
CONSTITUTIONAL DISEASES.																					
Rheumatic Fever	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rheumatism	..	..	..	..	..	..	1	2	1	..	..	..	..	2	..	..	2	4	2	4	6
Gout	..	..	..	..	..	..	..	..	..	.	..	1	1	1	..	..	1	2	1	2	3
Cancer, Malignant Diseases	..	..	..	1	..	1	1	..	2	5	11	23	7	15	..	1	21	44	21	45	66
Cancrum Oris (Noma)	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rickets	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	.
Tabes Mesenterica	11	5	2	6	13	11	1	1	..	..	.	..	..	..	..	..	..	2	13	13	26
Phthisis	2	1	3	2	5	3	9	12	53	38	25	16	3	4	..	..	90	70	95	73	168

DEATHS (continued).

	0 to 1		1 to 5		Under 5		5—20		20—40		40—60		60—80		80 and upwards.		Over 5		All ages.		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Hydrocephalus and Tubercular Meningitis	5	2	3	5	8	7	3	4	..	..	..	..	..	..	..	..	3	4	11	11	22
Other forms of Tuberculosis	10	1	4	3	14	4	1	4	..	1	1	2	..	..	..	..	2	7	16	11	27
Scrofula	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anæmia, Chlorosis, Leucocythæmia ..	..	1	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	1	..	2	2
Diabetes	..	..	..	..	..	..	1	1	2	..	5	1	..	..	..	..	8	2	8	2	10
Other Constitutional Diseases	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	.	2	..	2	2
	28	10	12	17	40	27	16	25	58	44	42	43	11	25	..	1	127	138	167	165	332
Class V.																					
LOCAL DISEASES.																					
1.—Diseases of Nervous System.																					
Inflammation of Brain or Membranes ..	8	10	6	6	14	16	3	12	4	4	..	1	..	2	..	..	7	19	21	35	56
Apoplexy, Softening of Brain, Paralysis	..	..	..	..	..	..	..	2	2	4	8	22	36	47	2	3	48	78	48	78	126
Insanity, General Paralysis of Insane ..	..	..	..	..	..	..	..	..	1	..	2	1	1	..	..	..	4	1	4	1	5
Chorea	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	1
Epilepsy	..	..	..	..	..	..	2	1	..	1	1	3	1	..	..	..	4	5	4	5	9
Convulsions	109	70	17	7	126	77	..	..	..	..	..	..	..	..	..	..	..	..	126	77	203
Laryngismus Stridulus	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Disease of Spinal Cord, Paraplegia, Paralysis Agitans	..	..	..	..	..	..	..	..	..	1	..	3	3	..	..	..	3	4	3	4	7
Other Diseases of Nervous System	1	..	..	..	1	..	..	..	..	..	..	..	2	..	..	..	2	..	3	..	4
2.—Diseases of Organs of Circulation.																					
Pericarditis and Endocarditis	..	..	..	..	..	..	1	..	..	..	..	1	1	..	..	..	2	1	2	1	3
Heart Disease	2	1	..	..	2	1	4	8	10	15	36	31	35	126	..	..	86	98	88	98	186
Aneurism	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	2	1	2	1	3
Embolism, Thrombosis	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Other Diseases of Blood Vessels	..	..	..	..	..	..	..	..	..	2	..	1	2	1	..	..	2	4	2	4	6
3.-Diseases of Respiratory Organs																					
Laryngitis	2	..	1	1	3	1	..	1	..	1	..	..	..	..	..	..	1	2	4	3	7
Bronchitis	56	44	24	44	80	88	1	2	4	5	17	23	19	35	5	3	46	68	126	156	282
Pleurisy	..	..	..	..	..	..	2	..	1	1	1	..	..	..	..	..	6	1	6	1	7

Pneumonia	28	17	19	20	47	37	2	4	13	5	13	8	11	12	1	..	40	29	87	66	153
Asthma and Emphysema	..	..	..	..	..	..	..	..	2	1	1	1	2	..	..	..	5	3	5	3	8
Croup	1	..	6	2	7	2	1	..	..	..	..	..	..	..	..	..	..	1	7	3	10
Other diseases of Respiratory Organs	..	2	3	2	3	4	..	1	1	1	1	1	2	..	..	..	7	1	9	5	14
4.—Diseases of Digestive Organs.																					
Gastritis	..	3	..	..	..	3	1	1	..	..	2	..	..	2	..	..	3	3	3	6	9
Other Diseases of Stomach	1	1	..	..	1	1	..	..	..	..	1	..	1	1	..	.	2	1	3	2	5
Enteritis	2	2	..	1	2	3	..	1	..	2	1	1	..	1	..	2	1	7	3	10	13
Peritonitis	1	1	..	..	1	1	2	3	2	3	..	..	..	3	..	..	4	9	5	10	15
Ascites	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	1
Obstructive Diseases of Intestines	..	1	1	..	1	1	..	..	1	1	4	4	5	8	1	..	11	13	12	14	26
Fistula	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..
Pancreas Disease, &c.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Cirrhosis of Liver	..	..	..	..	..	..	..	..	..	1	6	4	2	3	..	..	8	8	8	8	16
Jaundice, and other Diseases of Liver	3	2	..	..	3	2	..	..	..	1	1	3	2	4	1	1	4	9	7	11	18
5.—Diseases of Urinary Organs.																					
Nephritis	..	..	..	..	..	..	1	..	..	3	2	..	1	1	..	1	4	5	4	5	9
Bright's Disease (Albuminuria)	1	.	..	1	1	1	..	..	..	1	3	3	2	1	1	1	6	6	7	7	14
Diseases of Bladder or Prostrate	..	..	..	..	..	..	..	..	..	.	1	..	5	..	1	..	7	..	7	..	7
Calculus (Stone)	..	..	..	..	..	..	..	..	1	..	1	..	..	1	..	..	2	1	2	1	3
Other Diseases of Urinary System	..	..	.	..	..	..	..	..	..	..	1	3	1	..	..	..	2	3	2	3	5
6.—Diseases of Reproductive System.																					
(*a*) ORGANS OF GENERATION.																					
Male Organs	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	3	..	3	..	3
Female Organs	..	..	..	..	..	..	..	..	..	3	..	2	.	1	..	..	..	6	..	6	6
(*b*) OF PARTURITION.																					
Abortion, Miscarriage	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	.
Puerperal Convulsions	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	2	..	2	2
Placenta Prævia, Flooding	..	..	..	..	..	..	.	..	..	4	..	1	..	..	..	..	..	5	..	5	5
Other Accidents of Childbirth	..	..	..	..	..	..	..	1	..	12	..	3	..	..	..	..	..	16	..	16	16

DEATHS (continued).

	0 to 1		1 to 5		Under 5		5—20		20—40		40—60		60—80		80 and upwards.		Over 5		All ages.		Total.
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
7.—Diseases of Integumentary System.																					
Phlegmon	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Ulcer, Carbuncle	..	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	3	..	3	..	3
Other Diseases of Skin, &c.	2	2	..	..	2	2	..	..	..	..	..	..	..	..	..	..	..	..	2	2	4
8.—Diseases of Bones and Joints.																					
Caries and Necrosis	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	1	1	2
Arthritis, Ostitis, Periostitis	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	2	..	2	..	2
Other Diseases of Bones and Joints ..	..	1	..	..	..	1	1	..	1	1	..	1	..	..	..	..	2	2	2	3	5
9.—Diseases of Organs of Special Sense.																					
Ear, Eye, Nose	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	1
10.—Diseases of Lymphatic System, &c.																					
Lymphatics and Spleen	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Bronchocele, Addison's Disease	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Quinsy	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Class VI.	217	157	77	84	294	241	21	39	46	73	111	124	137	170	14	11	329	417	623	658	1281
DEVELOPMENTAL DISEASES.																					
Premature Birth	71	46	..	..	71	46	..	..	..	..	..	..	..	..	..	..	..	..	71	46	117
Atelectasis	3	2	..	1	3	3	..	..	..	..	..	..	..	..	..	..	..	..	3	3	6
Congenital Malformations	4	5	..	..	4	5	..	..	..	..	..	..	..	..	..	..	..	..	4	5	9
Teething	3	2	2	6	5	8	..	..	..	..	..	..	..	..	..	..	..	..	5	8	13
Atrophy, Inanition, Debility	118	92	10	7	128	99	..	..	..	1	..	..	..	..	..	..	..	1	128	100	228
Old Age	..	..	..	..	..	..	..	..	..	..	..	1	37	62	35	33	72	96	72	96	168
	199	147	12	14	211	161	..	..	..	1	..	1	37	62	35	33	72	97	283	258	541

Class VII. **DEATHS FROM VIOLENCE.**																					
1.—Accident or Negligence.																					
Fracture and Contusions	..	..	..	..	..	..	2	2	2	..	6	2	7	..	..	2	17	6	17	6	23
Gunshot Wounds	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cut, Stab	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Burns and Scalds	1	..	2	2	3	2	..	1	..	1	..	1	1	1	..	..	1	4	4	6	10
Poison	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	1	..	1
Drowning	1	..	1	1	2	1	2	2	..	1	2	..	1	..	..	..	5	3	7	4	11
Suffocation	11	6	..	..	11	6	..	..	1	..	1	1	..	..	..	..	2	1	13	7	20
Otherwise	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2.—Homicide.																					
Manslaughter	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Murder	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3.—Suicide.	..	..	..	..	..	..	1	..	2	1	4	..	4	..	..	..	11	1	11	1	12
	13	6	3	3	13	9	5	5	5	3	14	4	13	1	..	2	37	15	53	24	77
Class VIII. **DEATHS FROM ILL-DEFINED AND NOT SPECIFIED CAUSES.** (*e.g.*, Dropsy, Abscess, Tumour, Hæmorrhage, Mortification, Death from Natural Causes, &c.)	3	1	1	..	4	1	..	..	1	2	..	2	..	3	..	..	1	7	5	8	13
Class I. Zymotic diseases	102	93	68	63	170	156	12	8	9	18	6	3	5	..	1	..	33	29	203	185	388
,, II. Parasitic diseases	1	3	1	..	2	3	..	..	1	..	..	..	..	..	..	..	1	..	3	3	6
,, III. Dietic diseases	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	2	..	2
,, IV. Constitutional diseases	28	10	12	17	40	27	16	25	58	44	42	43	11	25	..	1	127	138	167	165	332
,, V. Local diseases	217	157	77	84	294	241	21	39	46	73	111	124	137	170	14	11	329	417	623	658	1281
,, VI. Developmental diseases	199	147	12	14	211	161	..	..	..	1	..	1	37	62	35	33	72	97	283	258	541
,, VII. Violent deaths	13	6	3	3	16	9	5	5	5	3	14	4	13	1	..	2	37	15	53	24	77
,, VIII. Ill-Defined, &c.	3	1	1	..	4	1	..	..	1	2	..	2	..	3	..	..	1	7	5	8	13
Totals	563	417	174	181	737	598	54	77	122	141	173	177	203	261	50	47	602	703	1339	1301	2640

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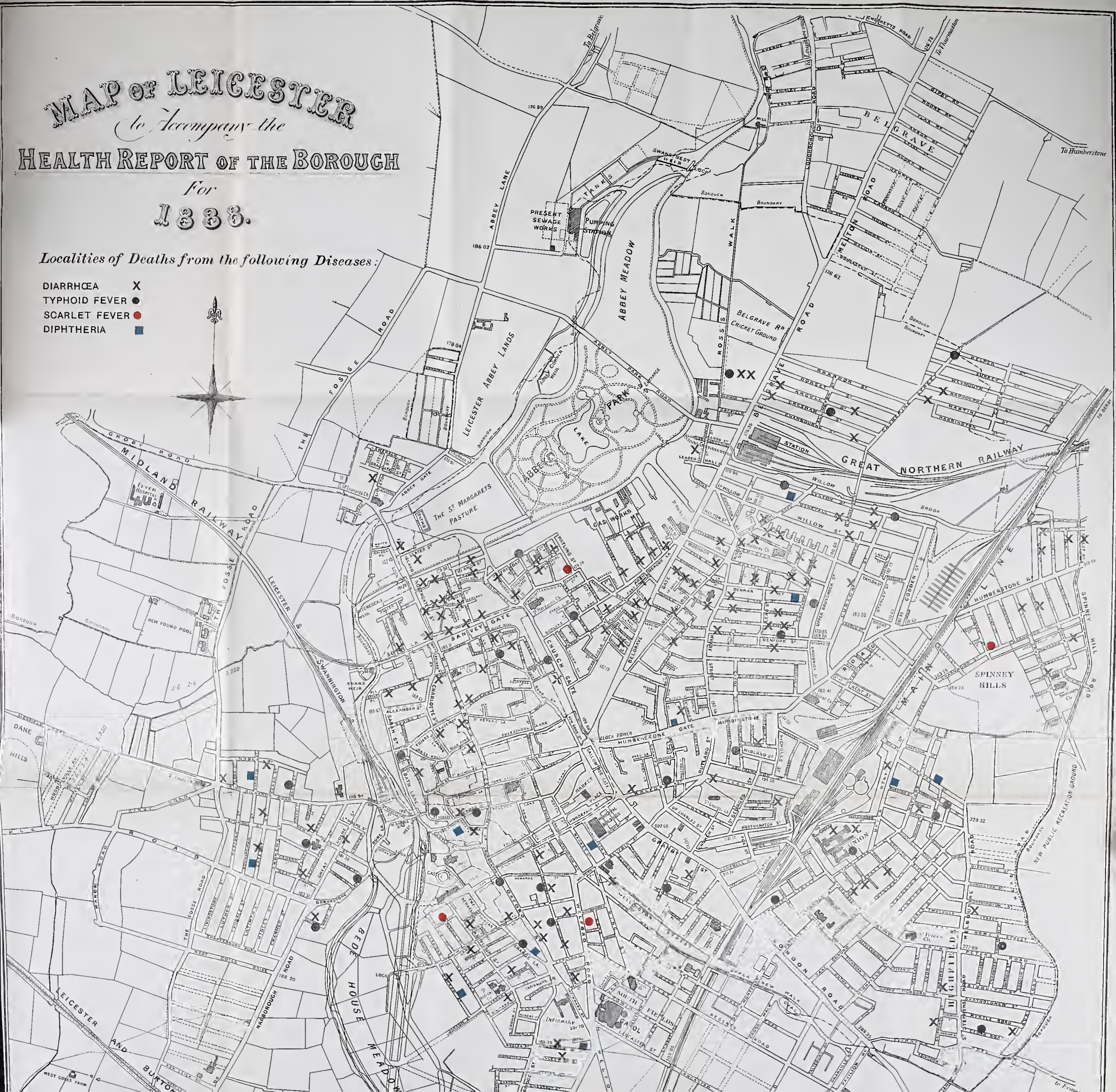
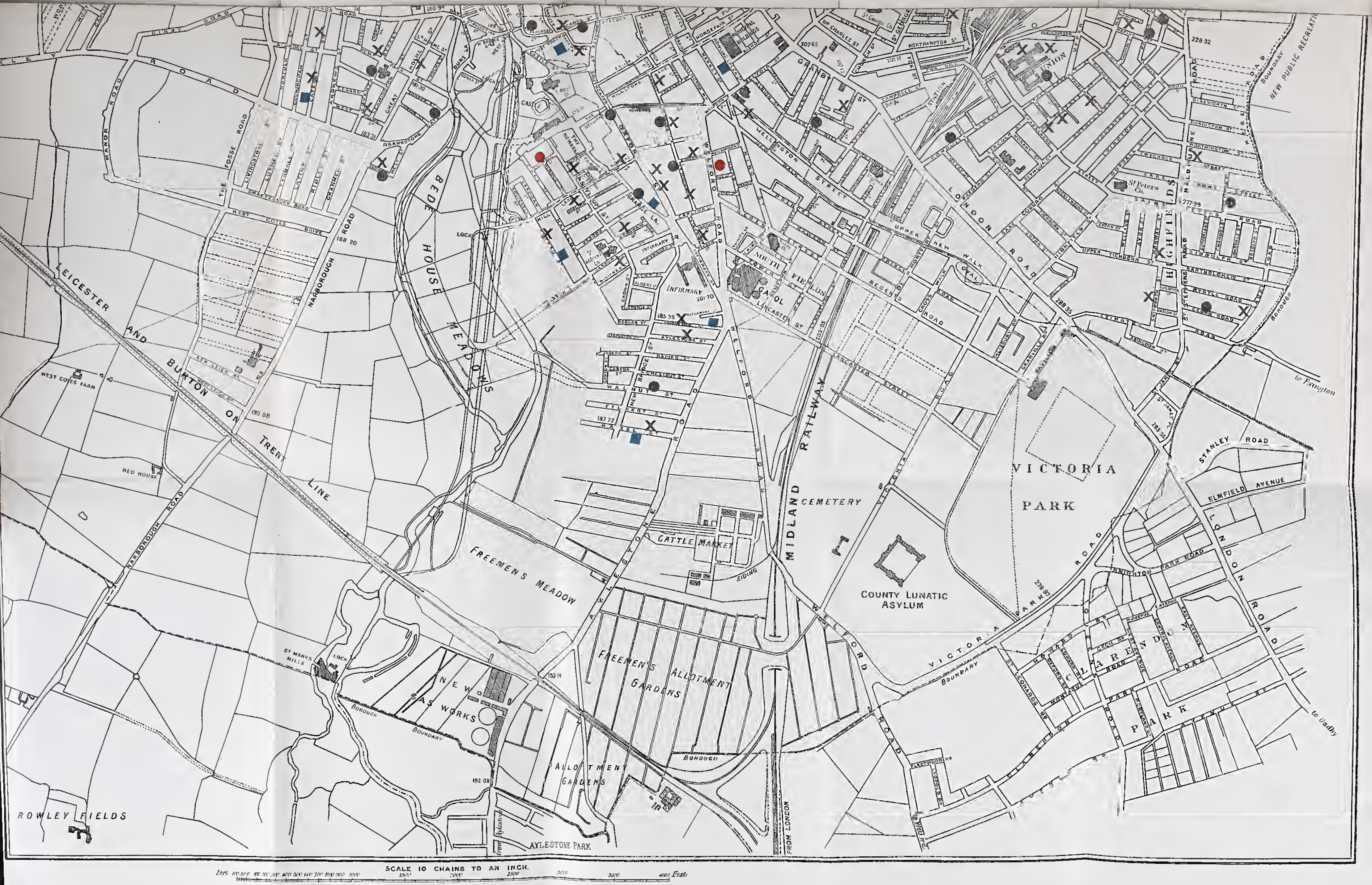


MAP OF LEICESTER
to Accompany the
HEALTH REPORT OF THE BOROUGH
For
1888.


VICTORIA PARK
COUNTY LUNATIC ASYLUM
CEMETERY
MIDLAND RAILWAY
FROM LONDON
LEICESTER AND BURTON ON TRENT LINE
FREEMEN'S MEADOW
FREEMEN'S ALLOTMENT GARDENS
ALLOTMENT GARDENS
NEW GAS WORKS
CATTLE MARKET
SIDING
BEDE HOUSE MEADOWS
INFIRMARY
GAOL
SOUTH FIELDS
CLARENDON PARK
HIGHFIELDS
UNION
STATION
NEW PUBLIC RECREATION
BOUNDARY
BOROUGH BOUNDARY
ROWLEY FIELDS
RED HOUSE
WEST COTES FARM
ST MARY'S MILLS
LOCK
AYLESTONE PARK
from Aylestone
to Evington
to Oadby
AYLESTONE ROAD
WELFORD ROAD
LONDON ROAD
VICTORIA PARK ROAD
NARBOROUGH ROAD
FOSSE ROAD
MANOR ROAD
HINCKLEY ROAD
WEST COTES DRIVE
SHAFTESBURY ROAD
WELLINGTON STREET
REGENT ROAD
UPPER NEW WALK
NEW WALK
OVAL
LANCASTER ST
STANLEY ROAD
ELMFIELD AVENUE
KNIGHTON PARK ROAD
CLARENDON PARK ROAD
ST STEPHENS ROAD
ST PETERS CH.
GRANBY ST
NORTHAMPTON ST
UP. CHARLES ST
CAMPBELL ST
HORSEFAIR ST
MUNICIPAL BUILDINGS
CASTLE
ST MARY'S CH.
ST ANDREW'S CH.
NEWARKE
OXFORD ST
GRANGE LA.
INFIRMARY SQ.
WALNUT ST
FILBERT ST
HAZEL ST
CHESTNUT ST
ASH LEIGH RD
SAXBY ST
UPPER TICHBORNE ST
EVINGTON ROAD
228.32
277.99
288.35
283.35
278.97
207.65
205.18
201.70
202.05
185.35
187.72
189.20
198.88
183.31
181.30
193.14
192.08
180.94
SCALE 10 CHAINS TO AN INCH.
Feet 100 50 0 100 200 300 400 500 600 700 800 900 1000 1500 2000 2500 3000 3500 4000 Feet